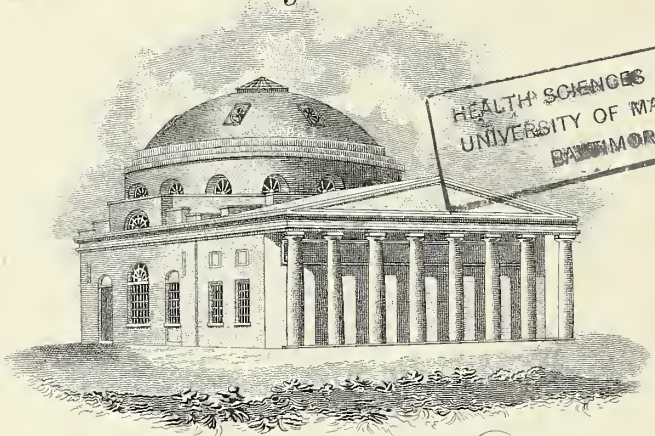
LIBRARY
OF THE
School of Medicine



HEALTH SCIENCES LIBRARY
UNIVERSITY OF MARYLAND
BALTIMORE

University of Maryland


Digitized by the Internet Archive
in 2016

https://archive.org/details/journalofkansasm5311kans

The Journal

OF THE

Kansas Medical Society

Published Monthly by

THE KANSAS MEDICAL SOCIETY

INDEX TO VOLUME LIII

JANUARY, 1952, TO DECEMBER, 1952, INCLUSIVE

UNIVERSITY OF MARYLAND
LIBRARY
SCHOOL OF MEDICINE

THE JOURNAL OF THE KANSAS MEDICAL SOCIETY

Index to Volume LIII

ORIGINAL ARTICLES

Acute Traumatic Subdural Hematoma: Report of a Case with Slight Trauma from Boxing—C. W. Hall, M.D., D. E. Eckart, M.D., M. E. Nunemaker, M.D., and R. A. Crawford, M.D., Hutchinson, Kansas 8-377

Cardiac Arrest: Its Diagnosis, Etiology and Treatment—Paul H. Lorhan, M.D., and W. E. Swartz, B.A., Kansas City, Kansas 7-332

Clinical Applications of Radioactive Isotopes in Small Hospitals, The—Frank E. Hoecker, Ph.D., Lawrence, Kansas, and Homer L. Hiebert, M.D., Topeka, Kansas 6-273

Complications and Diagnosis of Infectious Mononucleosis, The—Harry J. Wisner, M.D., Wichita, Kansas 12-566

Conditions of Education and Employment that Affect the Kansas Nurse—A Composite Opinion from Members of the Kansas Medical Society 9-427

Congenital Defects of the Kidney with Abdominal Pain—John W. Warren, Jr., M.D., Wichita, Kansas 10-470

Control of Post-Operative Pain in Ano-Rectal Surgery, The—Claude C. Tucker, M.D., Wichita, Kansas 5-230

Early Care of Injuries of the Genito-Urinary Tract, The—Committee on Trauma, American College of Surgeons 7-338

Errors in Diagnosis—How Made and How Avoided—Ralph Gorrell, M.D., Clarion, Iowa 1-10

Exsanguination from Papilloma of Jejunum—Cecil C. Hunnicutt, M.D., Sabetha, Kansas 6-285

Field of Allergy, The—Ethan Allan Brown, M.D., Boston, Massachusetts 2-49

Gangrenous Intussusception—Herbert H. Hesser, M.D., Chester L. Young, M.D., and Frederic Speer, M.D., Kansas City, Kansas 5-217

General Practice Today—Paul Williamson, M.D., Memphis, Tennessee 10-472

Giant Intracanalicular Fibro-Adenoma—John G. Shellito, M.D., and Wayne C. Bartlett, M.D., Wichita, Kansas .. 11-509

Harelip and Cleft Palate: Modern Trends in Management—David W. Robinson, M.D., Kansas City, Kansas 3-114

Hemorrhagic Transfusion Reactions—Charles H. McCroskey, M.D., and Stanley R. Friesen, M.D., Kansas City, Kansas 3-129

Infarction of the Right Ventricle: Report of a Case—Ann Pollak, M.D., Kansas City, Kansas 1-8

Instance of the Possible Transmission of Acute Thyroiditis, An—Gerald William Nice, M.D., and Rudolph Chess, M.D., Topeka, Kansas 10-465

Intravenous Avertin: A Preliminary Report—Roger W. Bumgarner, M.D., Richard L. Pokorny, M.D., Ernst T. Mörch, M.D., and Paul H. Lorhan, M.D., Kansas City, Kansas 3-124

Low Salt Syndrome in Congestive Heart Failure, The—Samuel Zelman, M.D., Topeka, Kansas 5-219

Low Transverse Incision for Pelvic Operations, The—Melvin A. Rabe, M.D., Leavenworth, Kansas 7-325

Marie-Strumpell Arthritis (Including a Survey of 41 Cases Treated with X-ray)—Charles M. White, M.D., Wichita, Kansas 8-369

Method for the Rectal Use of Nisulfazole in Chronic Ulcerative Colitis, A—William R. Durkee, M.D., Manhattan, Kansas 3-127

Needle Biopsy of the Liver as an Aid in the Diagnosis of Malignant Tumors—Robert T. Cotton, M.D., and Samuel Zelman, M.D., Topeka, Kansas 7-328

Nephroptosis—Alfred R. Sugg, M.D., Ada, Oklahoma 8-379

Neurovascular Syndromes of the Shoulder Girdle—F. Stanley Morest, M.D., Kansas City, Missouri 2-57

Nursing Problem in Small Hospitals, The—F. E. Wrightman, M.D., Sabetha, Kansas 9-423

Ophthalmoscopic Evaluation of the Hypertensive Patient—Fred M. Wilson, M.D., Indianapolis, Indiana 5-225

Possibilities and Limitations of Isotope Therapy of Cancer, The—Gould A. Andrews, M.D., Oak Ridge, Tennessee .. 12-561

Premature Rupture of Membranes with Report of a Case—N. C. Siebert, M.D., Wichita, Kansas 10-467

Primary Carcinoma of the Lung: A Study of 120 Autopsied Cases—David M. Gibson, M.D., Kansas City, Kansas .. 1-1

Problems Relating to Nurse Education in Kansas—Carl C. Lamley, Topeka, Kansas 9-421

Proposed 40-Hour Week for Professional Nurses Employed in Hospitals, The—Bruce W. Dickson, Jr., Kansas City, Kansas 9-426

Psychiatry in a University Health Service—Sigmund Gundle, M.D., Lawrence, Kansas 8-373

Recurrent Hyperthyroidism with Thyroid Crisis and Ventricular Tachycardia Successfully Treated with Radioactive Iodine (I^{131}): A Case Report—D. R. Bedford, M.D., F. E. Hoecker, Ph. D., and H. L. Hiebert, M.D., Topeka, Kansas 6-276

Role of Allergy in Infectious Diarrhea of Infancy, The—Frederic Speer, M.D., Kansas City, Kansas 11-511

Skin Injury by Fluorescent Bulb—W. C. Dreese, M.D., Halstead, Kansas 12-564

Strangulated Partial Enterocele (Richter's Hernia) Within the Femoral Canal: Report of Two Cases Treated by Resection and Primary Anastomosis of the Bowel—Carl D. Enna, M.D., and Edward Guy, M.D., Kansas City, Missouri 1-4

Surgical Injuries of the Urinary Tract—Raymond W. Stockton, M.D., and Robert H. Owens, M.D., Kansas City, Kansas 3-107

Survey of Nursing as Related to Kansas, A—Thomas R. Hood, M.D., and Roberta E. Foote, R.N., Topeka, Kansas 9-414

Terminal Bronchiolar or "Alveolar Cell" Carcinoma of Lung: A Case Report—H. H. Dunham, M.D., and V. G. Smith, M.D., Kansas City, Kansas 3-117

Towel Found in the Jejunum, A.—Homer B. Latimer, Ph.D., Lawrence, Kansas 11-516

Treatment of Hypertension—Arnold V. Arms, M.D., Kansas City, Missouri 11-513

Two Attacks of Endocarditis Caused by Different Microorganisms—Joe L. Stoskard, M.D., Kansas City, Kansas. 3-122

Use of Tracheotomy, Intermittent Positive Pressure and Sedation in the Treatment of Children Ill with Poliomyelitis, The—Jacqueline Baumeister, M.D., Mary J. Blood, M.D., Alice Marsh, M.D., and Alex Roth, M.D., Kansas City, Kansas 6-280

Water Fluoridation for the Partial Control of Dental Decay in Children's Teeth—Willard R. Bellinger, D.D.S., Topeka, Kansas 2-54

Working Program for the Care and Treatment of the Hypertensive Patient, A—E. Grey Dimond, M.D., Kansas City, Kansas 3-105

X-ray Pelvimetry in Private Practice—N. C. Siebert, M.D., and Charles M. White, M.D., Wichita, Kansas 2-45

CASE REPORT FROM THE UNIVERSITY OF KANSAS MEDICAL CENTER, CLINICAL PATHOLOGICAL CONFERENCE

Clinical Pathological Conference 2-70

Clinical Pathological Conference 5-240

Medical Thyroid Crisis 11-528

Pineal Teratoma 7-346

Sudden Death 9-436

CASE REPORT FROM THE UNIVERSITY OF KANSAS MEDICAL CENTER, TUMOR CONFERENCE

Bone and Joint Tumors 3-136

Carcinoma of the Rectum and Rectosigmoid 10-478

Germinal Tumors of the Testis 12-578

Ovarian Tumors 8-388

Pre-Cancerous and Cancerous Skin Lesions 1-18

Tumors of the Parotid Region 6-297

SENIOR THESIS FROM THE UNIVERSITY OF KANSAS MEDICAL SCHOOL

Adrenal Cortex and Carbohydrate Metabolism, The—Charles E. Krause, M.D., Kansas City, Missouri 6-304

Clinical Manifestations of Infections Caused by the Virus of Herpes Simplex—Robert S. Terrill, M.D., Kansas City, Missouri 8-394

Comparative Study of Insulins, A—Herman W. Hiesterman, M.D., Kansas City, Missouri 3-140

Coxsackie Viruses, The—Robert G. Wood, M.D., Kansas City, Kansas 7-354

Effect of Hyperventilation on Cerebrovascular Physiology, The—William Arthur, Kansas City, Kansas 10-484

Effects of Changes in Serum Potassium Concentration on the Electrocardiogram, The—Bob B. Andrews, M.D., Kansas City, Kansas 1-24

Evaluation of Thyroid Function Tests, An—David Rice, M.D., Kansas City, Kansas 9-444

5-772

Index to Volume LIII

Nervous System Dysfunction in Liver Disease—Dorothy Danna, M.D., Chicago, Illinois 2-80
Patent Ductus Arteriosus: Its Diagnosis and Management—Eugene V. Conklin, M.D., Kansas City, Missouri..... 11-534
Pleural Effusion—Vale Page, M.D., Temple, Texas..... 5-249
Sarcoidosis—Robert L. Hanes, M.D., Kansas City, Kansas.. 12-588

EDITORIALS

American Apathy 7-344
American Medical Education Foundation 12-575
American Medical Education Fund 3-134
And One to Grow On..... 6-289
Annual Meeting, April 27-May 1..... 3-134
Annual Session in Kansas City 5-237
Are Defense Bonds a Good Investment? 2-67
Conference of Presidents 7-345
Definitions 11-522
Doctor in Politics, The 6-287
Editor Resigns 5-237
Executive Assistant for Society 12-575
Fifth Annual Cancer Conference 11-521
Government and Free Enterprise, The..... 10-475
Grievance Committees 10-476
Happy New Year—1952 1-16
Health Insurance Planks 8-383
Hospital Costs 5-238
Indigent Health Care Survey 2-66
Indigent Health Services 9-432
Interprofessional Advisory Council 1-15
Journal Subscriptions 11-521
Kansas Medical Day 3-133
Malpractice Insurance 7-343
Medical Board Reports 12-576
Medicine's Political Responsibility 12-575
More Power from Niagara 7-343
New Dean at Medical School 6-287
Nurse's Dilemma, The 9-431
Nursing—A Profession or a Trade?..... 9-431
Our Greatest Resource 1-17
Physician Draft, The 8-384
Political Skirmish 6-288
President's Commission to Report 11-521
Rule of Kings, The 2-65
Sixth Annual University Issue 3-133
Socialism by the Inch 2-65
Society Membership 1-17
Swords into Plowshares 8-383
Treaty Law 10-475

DEATH NOTICES

Anderson, Dr. John B. 10-494
Baker, Dr. Elven O. 7-345
Billings, Dr. Alva E. 2-79
Bowen, Dr. James Dinwiddie 11-525
Calhoun, Dr. Fred 7-345
Carmichael, Dr. Francis A. 2-79
Clark, Dr. Philip Johnson 5-248
Cooper, Dr. Everett Lucius 8-398
Cox, Dr. Seth Leroy 5-248
Craig, Dr. Alexander C. 5-248
Dillon, Dr. John Alfred..... 1-22
Evans, Dr. John Lillie 8-398
Foltz, Dr. J. Eliot 9-443
Haage, Dr. Delbert Otto 1-22
Hawkins, Dr. Robert 12-584
Hennerich, Dr. Otto Andrew 1-22
Hibbard, Dr. James Sutherland 8-398
Johnson, Dr. Edward Hinman 12-584
Jones, Dr. Charles Warner 2-79
Kenoyer, Dr. William R. 6-299
Kimble, Dr. Thaddeus Carey 10-494
Light, Dr. Ralph Allison 7-345
Little, Dr. Bessie Belle 11-525
Mahre, Dr. John Alvin 2-79
Marshall, Dr. Hal Ellsworth 7-345
Nanninga, Dr. John Benjamin 5-248
Neas, Dr. Ingall Howard 1-22
Owen, Dr. Elijah Mobry 9-443
Palmer, Dr. Harold William 8-398
Petty, Dr. Charles Napoleon 5-248
Rainey, Dr. Edward Carlysle 8-398
Risdon, Dr. James Waldo 3-150
Sharp, Dr. Ethel Hill 10-494
Sheldon, Dr. Richard Robert 9-443
Sloo, Dr. Milo Goss 12-584
Smith, Dr. French Miles 5-248
Stelle, Dr. Harry Lewis 10-494
Ulrey, Dr. John Calvin 5-248
Vermillion, Dr. Earl Leroy 5-248

MISCELLANEOUS

Abstracts from Current Literature.....1-38; 2-90; 3-156; 5-264; 6-320; 7-364; 8-402; 9-456; 10-498; 11-550; 12-602
Activities of Members.....1-21; 2-77; 3-138; 5-246; 6-300; 7-351; 8-392; 9-434; 10-483; 11-526; 12-585
American Board Examinations..1-40; 2-100; 3-159; 4-211; 5-266
A.M.A. Clinical Session in Denver..... 11-522
A.M.A. Meeting 7-360
American View of European Medicine..... 2-94
Announcements.....2-96; 3-150; 4-212; 5-264; 6-314; 7-368; 8-400; 9-443; 10-500; 11-548; 12-596
Annual Assembly, Kansas Chapter, American Academy of General Practice 4-181
Annual Meeting, April 27-May 1..... 2-62
Appointments at Medical School 10-502
Army Tests Drug for Malaria..... 1-36
Blue Shield.....1-23; 2-76; 3-131; 5-235; 6-302; 7-353; 8-387; 9-441; 10-481; 11-524; 12-585
Book Reviews.....1-22; 2-92; 3-154; 5-260; 6-316; 7-362; 8-404; 9-454; 11-546; 12-600
Box Score on 82nd Congress..... 2-88
Cancer Conference in Wichita..... 5-235
Change at Cancer Society 8-400
Charges for Radioisotopes 8-386
Chicago Clinical Conference 1-17
Command Performance 9-442
Committee Chairmen 4-180
Committee Chairmen for 1953 Meeting..... 11-515
Committee on Pathology Appointed 11-525
Committee Reports 4-191
Committee Studies Rheumatic Fever 9-441
Committees for 1952-1953 10-466, 10-482
Conference on Heart Disease 11-522
Councilor Reports 4-188
County Societies.....1-30; 2-78; 3-148; 5-239; 6-299; 7-352; 10-494; 11-533; 12-598
Defense Against Epidemic Disease 1-36
Drug Offered for Research 2-69
Early Diagnosis of Uterine Cancer..... 1-36
Economy Governs Socialization 1-32
Evaluation of Prepayment Plans 6-318
Experimental Animals Necessary 3-148
Explaining the Kansas Plan 9-435
Eye, Ear, Nose and Throat Section..... 4-182
FCDA Buys Blood Extender 8-386
Five Hundred Specialists in Army..... 6-322
Golden Belt Society Meeting 8-387
Grant for Heart Study 1-36
Grants for Cancer Studies 9-435
Greetings 4-165
Guest Speakers 4-166
Guide for Planning Offices 11-533
Help for Cerebral Palsied 3-154
Hospital Statistics 8-404
Hospital Treats 50,000th Casualty 10-502
Injunction Against Hoxsey Cancer Clinic..... 11-523
Interim Session of the A.M.A. 2-68
Introduction to Trends in Nursing 9-413
Isolation of ACTH 12-604
Kansas Chapter A.C.S. Meets 10-502

Index to Volume LIII

Kansas Division A.C.S. Elects 12-577
Kansas Licenses to 131 9-442
Kansas Medical Assistants' Society 4-185
Kansas Physicians' Service 4-210
Kansas Press Looks at Medicine, The....1-34; 2-98; 3-152; 6-312; 10-496; 11-544
Kansas Schools of Nursing 9-424
Kansas Trudeau Society Meets 11-525
Letter from the Dean, A 7-341
Licenses to 52 2-78
List of Medical Films Available 12-604
Low Death Rate in 1951 5-272
Matching Plan for Internships 6-301
Medical Aspects of Civil Defense 8-406
Motion Picture List Revised 1-44
New Edition of Merck Index 2-75
New Heart Device at K. U. 12-596
New Type of Resuscitator Developed 3-152
93rd Annual Session, Kansas Medical Society.....1-13; 6-290
Nominating Committee 2-75
Nominations for K.M.S. Offices 3-135
Oklahoma City Clinical Society to Meet 10-477
Pamphlets on Heart Disease 7-364
Penicillin Prices Reduced 5-268
President 4-187
President-Elect 4-187
President's Page.....1-14; 2-64; 3-132; 4-186; 5-236; 6-286; 7-342; 8-382; 9-430; 10-474; 11-520; 12-574
Program for Aging Workers 3-152
Radioactive Cortisone for Research 6-303
Recommend Discarding Heroin 3-158
Records for Nursing Homes 9-452
Refresher Course in Cardiology 9-442
Report on Research 3-131
Research Grants to Kansans 8-406
Resolution on a 40-Hour Week for Registered Professional Nurses 9-425
Rocket Research Delayed for Drug Production 5-235
Schedule of Events 4-173
Sectional Meeting of A.C.S. 1-32
Service Separations.....8-385; 9-433; 10-477; 11-523; 12-577
Society of Audiologists Formed 9-441
Speedy X-rays for Army 3-150
State Hospital Fund Referred to Voters 10-504
Study of Physical Impairments 11-552
Supplement on Medical Pictures 8-408
Survey of Medical School Faculties 9-462
Technical Report on Blood 12-598
Temporary Accreditation to Topeka Hospital 11-522
To Help in National Campaign 9-442
Tuberculosis Death Rate Dropping 1-30
Woman's Auxiliary to the Kansas Medical Society..... 4-184

94TH ANNUAL SESSION OF THE

KANSAS MEDICAL SOCIETY

WICHITA, KANSAS MAY 4-7, 1953

UNIVERSITY OF MARYLAND
LIBRARY
Founded 1813
SCHOOL OF MEDICINE

THE JOURNAL
of the
KANSAS MEDICAL SOCIETY
Owned and Published by The Kansas Medical Society

Volume LIII JANUARY, 1952 No. 1

Primary Carcinoma of the Lung: A Study of 120 Autopsied Cases*

David M. Gibson, M.D.**

Kansas City, Kansas

At the University of Kansas Medical Center, in the 35-year period from 1914 to 1949, there have been 12,812 autopsies; of these, there were 1,840 cases of malignancy, 1,432 being cases of carcinoma, and 120 cases of primary carcinoma of the lung. Thus, primary carcinoma of the lung occurred in 0.9 per cent of all autopsies, in 6.5 per cent of all malignancies, and in 8.4 per cent of all carcinomas. Cancer of the lung is sixth in frequency of all tumors, and fourth in frequency of all carcinomas; it is exceeded in frequency by sarcomas, intracranial tumors, and carcinomas of the stomach, colon and prostate.

Most authors find carcinoma of the lung in 1-2 per cent of all autopsies,[1, 2, 3, 4] and in 6-10 per cent of all carcinomas.[1, 2, 5, 6] Many state that lung cancer is second in frequency only to carcinoma of the stomach.[2, 7, 8]

There seems no question that the incidence of carcinoma of the lung has increased in recent years; some authors regard this increase as real,[4, 9] while others contend that it is only apparent.[3] Analysis of the frequency by five-year periods (Chart 1) shows that although in overall statistics, carcinoma of the lung ranks fourth in frequency of all carcinomas, there has been a threefold increase since 1939, so that in the five-year period from 1944 to 1949, it is exceeded in frequency only by carcinoma of the colon. Thus, it seems that there has been a real increase in the incidence of carcinoma of the lung in recent years.

General Features. In accord with other reported findings, this lesion occurs predominantly in males. In the present series, 102 were males and 18 were females, giving a ratio of 5.7:1, or 85 per cent males. Lung cancer most commonly occurs during the fifth, sixth and seventh decades, with the peak incidence between 51 and 56 years. In this study, the mean age was 54 years, with an age range from 29 to 89 years.

The right lung was involved in 51 cases (49.5 per cent), and the left lung in 49 cases (47.5 per cent); in two cases, both hila were involved, and one case occurred at the tracheal bifurcation. The primary lesion was hilar in location in 92.4 per cent, peripheral in location in 6.5 per cent, and was diffuse in one case. The right upper lobe bronchus was the most frequent site of origin, and was closely followed by the left upper lobe bronchus, left lower lobe bronchus and the right lower lobe bronchus.

Distant metastases were present in 86.5 per cent of the cases, while involvement of the regional lymph nodes alone occurred in six per cent. Seven per cent of the cases showed no metastases. The hilar lymph nodes were involved in 89 per cent of 111 cases; metastases were present in the lung of

*From the Department of Pathology and Oncology, University of Kansas School of Medicine.
**Trainee, National Cancer Institute.

Chart 1. Incidence of carcinomas by five-year periods (per cent of all autopsies)

Five-year periods	*Carcinoma Stomach*	*Carcinoma Colon*	*Carcinoma Prostate*	*Carcinoma Lung*
1914-1919	3.0%	0	2.0%	0
1919-1924	3.7%	1.1%	0.7%	0.7%
1924-1929	2.0%	0.05%	1.2%	0.5%
1929-1934	1.8%	1.3%	0.9%	0.6%
1934-1939	1.6%	1.0%	0.8%	0.6%
1939-1944	1.5%	2.0%	0.9%	1.1%
1944-1949	1.2%	2.1%	1.0%	1.7%

origin in 39 per cent, and in the opposite lung in 24 per cent. The liver was involved in 28 per cent; adrenals, 27 per cent; pleura, 18 per cent; brain, 17 per cent; bones, 16 per cent; heart, 16 per cent; kidneys, 14 per cent; gastrointestinal tract, seven per cent; pancreas, nine per cent; and the spleen was involved in five per cent. The thyroid gland showed lesions in two cases, and the parathyroids, thymus and ovaries were each involved in one case. The lesions in the brain involved the cerebrum in 15 cases and the cerebellum in seven cases. The bone lesions, as would be expected, were predominantly in the ribs and vertebrae.

Cough was the most common symptom in this group of patients, occurring in 50 of 86 cases in which an adequate history was obtained. Other frequent symptoms included dyspnea, chest pain and hemoptysis. It is interesting to note that of the 19 cases with proven metastatic lesions to the central nervous system, the initial and predominating symptoms were those of the intracranial lesion in 13 cases. The main symptoms were referable to bone metastases, rather than the primary lesion, in two cases.

The average duration of life, from onset of symptoms to death, was 8.28 months; the shortest interval was two weeks, and the longest period was 36 months.

Histological Findings. All the microscopic sections of each case included in this series were carefully studied and classified as to histological type of tumor present.* In each case included in this report, the tumor was seen in close association with bronchial epithelium, and as far as could be determined, appeared to be arising therefrom. In many cases, of course, the lesion was so far advanced that actual origin from bronchial epithelium could not be demonstrated; these cases were included only if there seemed no doubt as to their origin.

The neoplasms were classified as squamous cell carcinomas, adenocarcinomas and anaplastic carcinomas. Every effort was made to find features characteristic of either squamous cell or glandular growths. It should be pointed out that a large number of growths were exceedingly pleomorphic in character, and it was not unusual to find cells in acinar formation adjacent to sheets of cells resembling squamous epithelium. This is in accord with the findings of other authors.[10, 11, 12] In such instances, the growths were classified on the basis of the predominant cell type.

The carcinomas in the present series were classified as follows:

Squamous Cell Carcinomas—48 cases
- Well differentiated—33
- Undifferentiated —15

Adenocarcinoma —42 cases
- Well differentiated—29
- Undifferentiated —13

Anaplastic Carcinoma —30 cases

Thus, there are 62 well differentiated growths, and 58 undifferentiated ones. This distribution is in accord with other reported series[2, 5, 9, 12, 13, 14, 15] with the exception that the incidence of adenocarcinomas is generally higher here. This may be due to the fact that special effort was expended to avoid placing undifferentiated adenomatous growths in the anaplastic group.

Comparison of cell types. In an autopsy series, dealing largely with untreated, or at least unoperated, cases, where the carcinoma has been permitted to run its full course, the various types of growths lend themselves well to comparison. The only significant difference between the different cell types is that almost all the cases that did not metastasize, or which showed only extension to the regional lymph nodes, were of the well differentiated squamous cell type. The differentiated adenocarcinomas showed as much tendency to metastasize as the undifferentiated growths (Charts 2 and 3). It is also interesting in this respect to point out that many of the adenocarcinomas metastasized to bizarre locations (phalanx of the thumb, thyroid, parathyroid, thymus, skin) while the other types showed more orthodox lines of dissemination.

Histogenesis and Alveolar Cell Tumors. Most authors agree that the majority of lung tumors originate from bronchial epithelium. However, there has been great controversy over the role of the alveolar lining cells in the genesis of these tumors. Fried[10, 11] believes that all lung cancer is bronchial in origin and arises from the undifferentiated, totipotent basal cells of the bronchial epithelium. He

*I am indebted to J. O. Boley, M.D., for aid in classification and for reviewing many histological sections with me.

Chart 2. Distribution of metastases according to cell type (cases)

Cell Type	*No Metastases*	*Regional Nodes Only*	*Distant Metastases*
Differentiated Squamous	7	4	20
Undifferentiated Squamous	0	1	14
Differentiated Adenoca	1	1	23
Undifferentiated Adenoca	0	0	11
Anaplastic Carcinoma	0	1	28

also holds that the alveolar lining cells are reticuloendothelial cells of mesenchymal origin, and, as such, cannot give rise to a carcinoma. Other authors believe that the alveoli have a continuous epithelial lining,[16, 17] while still others contend that the lungs have a dual origin, the major bronchi arising from endoderm and the bronchioles and alveoli from mesoderm.[18, 19]

In recent years, however, there has been increasing evidence for the existence of alveolar cell tumors, and evidence of a relationship to pulmonary adenomatosis, or "jagziekte" of sheep.[20, 21, 22, 23, 24, 25] Criteria to be met for the diagnosis of alveolar cell tumors have been listed recently:[26] 1. alveolar cellular proliferation, characterized by the appearance of tall columnar mucus producing cells. 2. absence of an intrinsic tumor of the bronchial tree. 3. absence of primary adenocarcinoma of any other part of the body.

The prevailing views on the question of alveolar cell tumors are well described in a recent editorial in the Journal of the American Medical Association.[27]

One of the cases in the present series, classified as an adenocarcinoma, fulfills the criteria for an alveolar cell carcinoma. This tumor occurred in a 33-year-old man; the symptoms were chest pain, weakness, dyspnea and hemoptysis; the duration of life was approximately eight months. At autopsy most of the left lung was involved with tumor, except for a narrow rim of peripheral uninvolved lung tissue in some areas. There were a few small metastatic lesions in the liver. No primary bronchial origin could be found, and the histologic picture was that of an alveolar cell tumor.

All observers agree that in many inflammatory conditions the alveolar walls may become invested with a continuous lining of columnar or cuboidal cells that resemble epithelium; regardless of the origin of these cells, it seems logical to believe that a more powerful stimulus, or altered resistance on the part of the host, or the interplay of numerous other unknown factors might lead to the continuous perpetuation of these cells, with the formation of an alveolar cell tumor, either cancerous or noncancerous.

The existence of alveolar cell tumors as neoplasms exhibiting a characteristic architectural arrangement cannot be doubted; the controversy concerns the origin of the cells involved.

Summary

1. One hundred and twenty cases of primary carcinoma of the lung, observed at autopsy, have been studied. This lesion occurred in 0.9 per cent of all 12,812 autopsies, and in eight per cent of all 1,432 carcinomas. It is exceeded in frequency by sarcomas, intracranial tumors, and carcinomas of the stomach, colon and prostate. It is concluded that there has been both an apparent and a real increase in the incidence of carcinoma of the lung in recent years.

2. Eighty-five per cent of cases occurred in men. The mean age was 54, with an age range of 29 to 89 years.

3. The right lung was involved primarily in 49 per cent, and the left lung in 47 per cent. The lesion was hilar in location in 92 per cent and peripheral in location in six per cent.

4. Distant metastases occurred in 86 per cent; involvement of regional lymph nodes alone in six per cent; and metastases were absent in seven per cent. The liver, adrenals, brain, bones, heart, and kidneys were the organs most frequently involved.

5. Cough was the most common presenting symptom, followed by dyspnea, chest pain and hemoptysis. Of 19 cases with brain metastasis, the presenting symptoms of 13 were due to the intracranial lesion.

6. The tumors were classified as follows: squamous cell carcinoma, 48 cases; adenocarcinoma, 42 cases; anaplastic carcinoma, 30 cases.

7. In general it may be said that well differentiated squamous cell growths show less tendency to metastasize than other types, while differentiated adenocarcinomas behave much as anaplastic tumors do.

8. The histogenesis of primary lung tumors and the problem of alveolar cell tumors of the lung are mentioned.

References

1. Perrone, J. A., and Levinson, J. P.: Primary Carcinoma of the Lung (Report of 115 cases; 38 autopsies and 77 bronchoscopic biopsies). Ann. Int. Med. 17: 1, 12-26, July, 1942.
2. Menne, F. R., and Anderson, M. W.: Bronchiogenic Carcinoma: Incidence in the Pacific Northwest, with a commentary on 84 cases. Jr. Am. Med. Ass. 117: 26, 2215-2222, Dec. 27, 1941.
3. Steiner, P. E.: Incidence of Primary Carcinoma of the Lung with Special Reference to its Increase. Arch. Path. 37: 3, 185-196, March, 1944.
4. Ochsner, A., Dixon, J. L., and DeBakey, M.: Primary Bronchiogenic Carcinoma. Dis. Chest 11: 2, 97-129, March-April, 1945.
5. Fetter, F.: Carcinoma of the Lung: A Review of 31 Proved Cases at the Philadelphia Naval Hospital. Ann. Int. Med. 18: 6, 978-988, June, 1943.
6. Adams, R.: Primary Lung Tumors. Jr. Am. Med. Ass. 130: 9, 547-553, March 2, 1946.

Chart 3. Distribution of metastases according to degree of differentiation (cases)

Degree of Differentiation	*No Metastases*	*Regional Nodes Only*	*Distant Metastases*
Well Differentiated	8	5	43
Undifferentiated	0	2	53

7. Koletsky, S.: Primary Carcinoma of the Lung: A Clinical and Pathologic Study of 100 cases. Arch. Int. Med. 62: 4, 636-651, Oct., 1938.
8. Brines, O. A., and Kenning, J. C.: Bronchiogenic Carcinoma. Am. Jr. Clin. Path. 7: 2, 120, March, 1937.
9. Hollingsworth, R. K.: Bronchiogenic Carcinoma; An Analysis of 343 Cases. Ann. Int. Med. 26: 3, 377-385, March, 1947.
10. Fried, B. M.: Primary Carcinoma of the Lung: A Clinical and Pathological Study. Medicine 10: 4, 373-508, Dec., 1931.
11. Fried, B. M.: Bronchiogenic Carcinoma and Adenoma. Williams & Wilkins Co., Philadelphia, 1948.
12. Halpert, B., and Pearson, B.: The Cellular Structure of Carcinoma of the Lung. A Study of 92 Cases. Am. Jr. Cancer 40: 2, 213-218, Oct., 1940.
13. White, T. J., Cohen, S., Gnassi, A. M., and Price, P.: Primary Carcinoma of the Bronchus. An Analysis of 56 Cases. Jr. Am. Med. Ass. 118: 11, 862-865, March 14, 1942.
14. Samson, P. C.: Entdifferentiation in Bronchiogenic Carcinoma. Am. Jr. Cancer 23: 4, 741-753, April, 1935.
15. Brindley, G. V.: Surgical Aspects of Bronchiogenic Carcinoma. Proc. Staff Meet. Mayo Clinic 19: 14, 361-366, July 12, 1944.
16. Miller, W. S.: The Lung, 2nd Edition, Charles C. Thomas, Springfield, Ill., 1947.
17. Jackson, C. L., and Konzelmann, F. W.: Bronchial Carcinoma. Jr. Thorac. Surg. 4: 165, Dec., 1934.
18. Rose, S. B.: The Finer Structure of the Lung, with Special Reference to its Vascular Character and its Pathologic Significance. Arch. Path. 6: 1, 36-47, July, 1928.
19. Waddell, W. R.: Organoid Differentiation of the Fetal Lung: A Histologic Study of the Mammalian Fetal Lung in Utero and in Transplants. Arch. Path. 47: 3, 227-247, March, 1949.
20. Drymalski, G. W., Thompson, J. R., and Sweany, H. C.: Pulmonary Adenomatosis, A Report of 3 cases. Am. Jr. Path. 24: 5, 1083-1095, Sept., 1948.
21. Frissell, L. F., and Knox, L. C.: Primary Carcinoma of the Lung. Am. Jr. Cancer 30: 2, 219-288, June, 1937.
22. Delarue, N. C., and Graham, E. A.: Alveolar Cell Carcinoma of the Lung (Pulmonary Adenomatosis, Jagziekte?). Jr. Thorac. Surg. 18: 2, 237-251, April, 1949.
23. Laipply, T. C., and Fisher, C. I.: Primary Alveolar Cell Tumors of the Lung. Arch. Path. 48: 2, 107-118, Aug., 1949.
24. Smith, R. R., Knudtson, K. P., and Watson, W. L.: Terminal Bronchiolar or "Alveolar Cell" Cancer of the Lung. A Report of 20 Cases. Cancer 2: 6, 972-990, Nov., 1949.
25. Neubuerger, K. T., and Geever, E. F.: Alveolar Cell Tumor of the Human Lung. Arch. Path. 33: 4, 551-569, April, 1942.
26. Swan, L. L.: Pulmonary Adenomatosis of Man, A Review of the Literature and a Report of 9 Cases. Arch. Path. 47: 6, 517-544, June, 1949.
27. Editorial. Jr. Am. Med. Ass. 144: 18, 1567-1568, Dec. 30, 1950.

Strangulated Partial Enterocele (Richter's Hernia) Within the Femoral Canal: Report of Two Cases Treated by Resection and Primary Anastomosis of the Bowel

Carl D. Enna, M.D.,* and Edward Guy, M.D.**

Kansas City, Missouri

In a review of the medical literature regarding the subject of partial enterocele, recognition is given to Guilielmus Fabricius Haldanus as first to refer to this type of hernia in the year 1598. A subsequent account of this condition was made by Lavater in 1672; however, it was not published until 1755. Alexis Littre, a French surgeon, who is credited as first to recognize hernia of the Meckel's diverticulum, made reference in a report published by him on August 18, 1700, entitled "Observations on a New Type of Hernia" to partial enterocele in an inguinal hernia.

It is believed, however, that these supposed cases of partial enterocele have been shown to have been instances of hernia of Meckel's diverticulum instead. The earliest mentioned report fully describing and differentiating partial enterocele was made by the German surgeon August Gottlieb Richter in an essay on the subject published during 1779-80. In view of this work it was later recommended by Frederich Treves of England that this type of hernia be referred to as Richter's hernia.

Though the term Richter's hernia has since been generally accepted and is yet used, it is not preferred for the following reasons: First, it may be questionable whether the tribute extended to Richter is appropriate in view of the association of the names of other men with the subject, and particularly since the first reference to the subject was made by Haldanus. Second, the use of a proper name is inadvisable for it precludes either anatomical or pathological descriptive terms that would convey a more exact definition of the disease. Third and last, it is generally inferred by the term that an enterocele is without exception engaged within the femoral canal. This obscures the fact that it may likewise occur within other abnormal openings of the abdominal wall. It is therefore recommended that the term partial enterocele be employed instead with the qualification of the designated involved hernia.

Partial enterocele may be defined as an affection in which only a portion of the circumference of the bowel becomes engaged within a hernia sac. Apparently without exception, it affects the anti-mesenteric border of the bowel. Strangulation may result with the development of irreversible circulatory changes. However, strangulation is regarded to occur rarely. In a review of the literature, several articles reporting an isolated case or few cases are noted. The report by Catell in 1933 states that he found only 14 cases which had come to operation during the period from 1899 to 1933 at the Lahey Clinic, to which he added two cases. Lyall and Luomanen presented a larger series of 17 cases from

*Attending surgeon, St. Margaret's Hospital.
**Assistant resident in surgery, St. Margaret's Hospital.

the Second (Cornell) Surgical Service, Bellvue Hospital, New York, taken from the records during December 1917 to July 1945.

Besides occurring within the femoral canal, it has been reported that partial enterocele has become engaged within other body orifices. The femoral variety make up the greater percentage with the inguinal and ventral types occurring next in frequency. Strangulation likewise has a higher incidence of occurrence within the femoral canal. This is understandable in large part on the basis of the following reasons: 1. The absence of mesentery to the incarcerated portion of bowel; 2. The anatomical structure of the femoral sheath and the relation of its contents. The sheath possesses a funnel shaped channel which invests the femoral structures and canal. Once a hernia develops a reactive process characterized by edema, hyperemia and swelling, reduction becomes difficult, after it has descended beyond the smaller external orifice of the funnel like canal. Ensuing events usually result in incarceration and eventual strangulation.

The diagnosis of partial enterocele carries a high incidence of error. A number of conditions have been mistakenly diagnosed which include various diseases that may cause lower abdominal pain. The disease is not recognized usually because of the following reasons: 1. A history of hernia is not obtained. 2. The bulge when produced by the hernia is usually small. It has been expressed that it is neither visible nor palpable in about 50 per cent of the cases. 3. Pain at the site of the involved hernia is infrequent. Instead, the complaint is usually referred to the abdomen. 4. The clinical picture is protean. It may simulate other diseases such as acute appendicitis, intestinal obstruction and/or other acute surgical diseases of the abdomen. It cannot be urged too strongly to examine the hernia rings, particularly the femoral, during the investigation of any acute abdominal emergency. The failure to recognize the disease early becomes associated with a greater morbidity and a higher mortality rate than that of ordinary strangulated hernia.

Treatment consists of immediate surgical intervention. The manual reduction of the hernia without visualization of its contents is mentioned only to condemn it. The bowel should always be examined. Although it is possible for reversible circulatory changes to take place, the incidence of strangulation is high, thereby creating a greater risk. Spontaneous fecal fistula has been reported to occur with eventual recovery.

Enterostomy has been advised on the basis of this observation. It is felt, however, that this procedure is inadvisable except perhaps for the unusual case in extremis. An enterostomy placed proximal to the site of strangulation is likewise losing favor and is probably no longer employed even in conjunction with resection and anastomosis of the bowel. Prior to the advent of chemotherapy and antibiotics, bowel resection was associated with a high post-operative mortality rate. This led to the acceptance of methods serving to divert the fecal stream such as by enterostomy or marsupialization. The purpose of these methods was to permit healing of the repaired bowel distal to the enterostomy or, in the case of exteriorization, to later enable a retroperitoneal closure. These measures have not been satisfactory from many aspects. Recently we have encountered two cases of strangulated partial enterocele engaged within the femoral canal, both patients making uneventful recovery following primary resection and anastomosis. The application of this surgical principle is now more widely accepted since the efficacy of the newer basterio-static and bactericidal agents has been demonstrated both experimentally and clinically.

Following are summaries of two cases accompanied with comments, particularly with regard to diagnosis and treatment.

Case 1. St. Margaret's Hospital No. 3988

White male, age 67 years, admitted August 7, 1950. Admission complaints were generalized abdominal soreness with nausea and vomiting of three days duration. The pain had localized to the lower right abdomen. There had been no bowel movement since the onset of illness.

Physical findings: T-99^2, P-84, B.P. 124/80. Significant findings were limited to the abdomen. It was soft and no masses were palpable. Tenderness

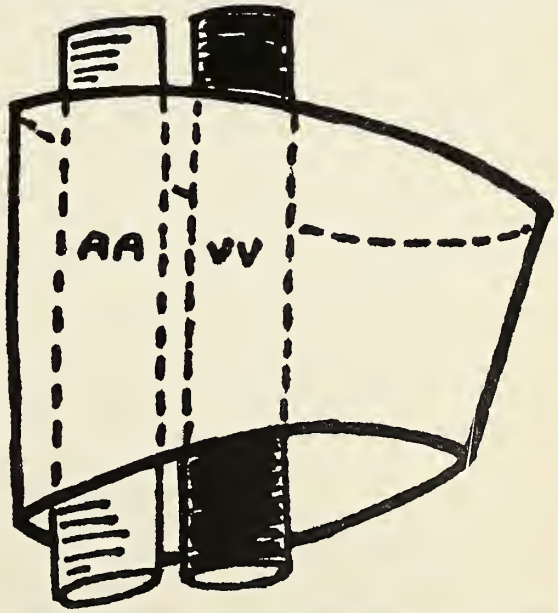


Figure. 1. Diagram of femoral sheath illustrating the shorter and oblique medial wall with resultant funnel shaped canal.

was localized about two inches below McBurney's point.

Laboratory reports: Urinalysis negative. CBC negative except for wbc, 8,800 and polys, 94 per cent.

Pre-operative diagnosis: Acute appendicitis.

Operative findings: 1. Considerable amount of clear amber fluid present within peritoneal cavity. 2. The serosal vessels of the appendix were congested, but there was no other evidence indicating acute appendicitis. 3. A loop of ileum within the pelvis was dilated and congested possessing deep red discoloration. 4. The ileum was adherent within the right femoral canal whereby a portion of its anti-mesenteric border was incarcerated and possessed irreversible circulatory changes. 5. There was about five cc. of dark bloody fluid within the sac.

Operative procedure: A McBurney incision was made and the abdomen was explored. Routine appendectomy was first performed. The ileum was then reduced by blunt dissection with a finger combined with gentle traction. The entire circumference of the affected bowel was resected and an end to end anastomosis was performed. The incisional wound was then closed.

Since the patient had tolerated the forementioned procedure well, it was decided to proceed with the repair of the femoral hernia. This was accomplished through a second incision. An oblique right inguinal incision was made, exposing the inguinal femoral region. The femoral sac was identified entering the canal within the pelvis. The sac was isolated and excised. Repair was accomplished by approximating the transversalis fascia to the superior pubic ligament (Cooper's ligament), followed by the approximation of the corresponding layers of the inguinal canal.

Post-operative course: Immediate ambulation was permitted. The patient was out of bed on the day of surgery. Gastric suction was not instituted initially. On the third post-operative day moderate abdominal distention unassociated with nausea and vomiting developed. This was corrected by the institution of gastric suction for 24 hours and the removal of a fecal impaction. Convalescence was otherwise uneventful. Discharge date was August 15, 1950, the eighth post-operative day. Follow-up examination 10 months subsequently revealed that the patient was quite well and had no complaints.

Comment: This case illustrates the following points of interest. The clinical picture simulated acute appendicitis. The McBurney incision was adequate for exploration, reduction of the incarcerated bowel, and resection with anastomosis of the gangrenous ileum. It was not adequate, however, to enable repair of the femoral canal from within the abdomen. The incision could have been modified by extending it vertically and inferiorly. Instead, it was elected to repair it through an additional incision. Both procedures were accomplished without jeopardy to the patient.

Case 2. St. Margaret's Hospital No. 4850

White female, age 62 years, admitted October 22, 1950. Admission complaints were generalized abdominal cramps associated with nausea and vomiting of 48 hours duration. Of less interest to the patient was a slightly tender lump in the right groin. She had passed no flatus or stool since the onset of illness.

Physical findings: T-97, P-80, B.P.-112/60. Significant findings were limited to the abdomen and groin. The abdomen was slightly distended but soft and without localized tenderness. Paristalsis was audible. There was a tender mass about one and one-half inches in diameter located at a site corresponding to the external femoral ring. The mass was irreducible.

Laboratory reports: Urinalysis negative. CBC negative with 10,700 wbc and 78 per cent polys.

Pre-operative diagnosis: Strangulated partial enterocele within the right femoral canal.

Operative findings: 1. Considerable amount of clear straw colored fluid within the peritoneal cavity. 2. Several distended and congested loops of small bowel due to obstruction as a result of incarceration of the ileum within the femoral canal. 3. A portion of the anti-mesenteric border of a loop of ileum was constricted and gangrenous. 4. There was about 5 to 10 cc. of dark bloody fluid within the femoral sac.

Operative procedure: An oblique right inguinal incision was made which exposed the inguinal femoral region from within the pelvis. The peritoneum was incised above the site of constriction of the sac at the internal femoral ring. The bowel was released, resected and anastomosed. The femoral canal was repaired by the closure of its internal ring followed by a conventional method of repair of the inguinal canal.

Post-operative course: Convalescence was uneventful. Immediate ambulation was permitted. The patient was discharged on October 29, 1950, the seventh post-operative day. Follow-up examination seven months later revealed the patient in good health without complaint.

Comment: The clinical picture as noted in this case indicated an incomplete type of intestinal obstruction. In considering that hernia is one of the most common causes of intestinal obstruction, coupled with the presence of a tender lump in the right groin, the diagnosis of partial enterocele was made. The exposure obtained by the inguinal ap-

proach enabled direct vision both intra and extraperitoneally, thereby facilitating both the management of the affected bowel and the repair of the hernia.

Discussion

The importance of establishing an early diagnosis of partial enterocele cannot be over emphasized. It is made difficult since it may present a clinical picture simulating many diseases that cause lower abdominal pain. Delay needed for observation may turn into procrastination. Deference as noted in these cases may, on the other hand, be due to the patient. Certainly the examination of a patient with abdominal pain interpreted to require surgical intervention should include the investigation of all abnormal external openings of the abdominal wall. The importance of the pre-operative opinion is reflected in the choice of the incision that is made.

Any vertical lower right abdominal incision will serve for exploration. It may be extended to improve the exposure of the inguinal femoral region from within the abdomen. The McBurney incision may likewise be enlarged. Should the initial incision be considered inaccurately placed and its extension deemed inadvisable, it would then be preferable to close it and place another at a more advantageous site.

There are two phases in the surgical treatment of partial enterocele. One is the reduction of the engaged bowel with resection if indicated; the second is the repair of the hernia. The first measure is mandatory. Reduction may be accomplished with bimanual combined taxis and traction under direct vision. Digital dilation of the ring may be employed to facilitate its release. If the bowel cannot be freed, the ring may be divided. In the case of the femoral canal, the inguinal ligament should be severed close to the pubic spine to obviate injury to anomalous vessels, particularly an abnormal obturator artery. The contents are placed into a moist gauze pack. An effort is thus made to limit the potentially infected hemorrhagic transudate within the sac to avoid risk of contaminating the peritoneal cavity. With reduction accomplished, the viability of the affected bowel is then ascertained. Should the circulatory changes be irreversible, resection of a circumferential segment of the bowel with primary end to end anastomosis is done.

The second phase consists of the repair of the abdominal wall defect. This may be deferred if warranted because of the patient's condition. However, if the patient's condition permits, it can be accomplished either through the original incision or through a second incision placed over the site of the hernia. The exposure obtained by the inguinal approach when instituted has many advantages. It enables the accomplishment of both phases of surgery through the original unmodified incision. It particularly facilitates the repair of the inguinal femoral region.

The defect is preferably corrected by approximating the transversalis fascia to the superior pubic ligament. This step serves to obviate hernia of both the femoral and inguinal variety. Any conventional method of repair may be used providing it will serve to close the femoral canal. The femoral canal may be approached either from within the pelvis, whereby the internal ring is closed by approximating the inguinal and superior pubic ligaments, or from without, through the femoral approach which essentially accomplishes obliteration of the canal.

Conclusion

1. Early recognition and immediate surgical intervention is urged in order to attain a lower morbidity and mortality that may result from partial enterocele.

2. Its diagnosis can be more frequently ascertained if hernia rings are routinely examined in acute surgical diseases of the abdomen.

3. The inguinal approach is recommended for it provides both intra- and extra-peritoneal exposure through one incision and permits the accomplishment of both phases in the surgical treatment of partial enterocele, namely the management of the contents and the repair of the hernia.

4. The performance of primary resection and anastomosis of the bowel, when indicated, is preferable to the other previously employed methods such as enterostomy or exteriorization of the bowel.

5. The application of the following principles post-operatively is of equal importance in contributing to recovery. Early ambulation is encouraged. Gastric suction is not recommended as a prophylactic measure; it is felt that it will serve only to deprive the elderly patient of much needed electrolytes. Parenteral fluids are given to restore water, electrolytes and vitamin requirements and to maintain nitrogen balance. Fluids are given orally as soon as peristalsis becomes audible. Chemotherapy and antibiotics are administered on the basis of their value from a prophylactic standpoint.

6. It is our opinion that the combination of the above mentioned factors will serve to minimize the morbidity and to lower the mortality of partial enterocele.

Bibliography

1. Catell, R. B.; Richter's Hernia. Surg. Gyn. and Obst. 56: 700-704, 1933.
2. Dennis, C. and Varco, R. L.; Femoral Hernia with Gangrenous Bowel. Surgery. Vol. 22, 1947. Pp. 312-323.
3. Douglas, D. M.; Strangulated Hernia. Consideration of Some Factors Affecting Mortality. Brit. M.J. 1: 354, 1942.
4. Iason, Alfred H.; Hernia, Textbook. Publishers, The Blakiston Co., 1941.

5. Laing, M. V., and Blake, C. D.; Richter's Type Hernia of the Transverse Colon. J. Kansas M. Soc., Vol. L., June 1949, pp. 278.
6. Lyall, D., and Luomanen, R.; Richter's Hernia. Am. J. Surg. 75: 828-833, June '48.
7. Mastin, E. V.; Richter's Hernia, Case. Am. J. Surg. 57: 179, July '42.
8. Neuhof, H.; Strangulated Richter's Hernia, Operative Treatment by Laparotomy. J. Mt. Sinai Hosp. 8: 181-183, Sept.-Oct. '41.
9. Orr, T. G.: Richter's Hernia, J. Kansas M. Soc. 1930. xxxl, 165.
10. Treves, Frederich; Richter's Hernia, or Partial Enterocele. Med. Chir. Tr. London 70: 149-167, 1887.
11. Wilson, G. E.; Richter's Hernia, Report of Two Cases. J. American M. Assoc. 102: 1938-1940, June 9, '34.

Infarction of the Right Ventricle: Report of a Case

Ann Pollak, M.D.*

Kansas City, Kansas

Infarction of the right ventricle is generally considered to be an entity of great rarity. Numerous textbooks on the subject of cardiology[1, 2, 3] and of pathology[4, 5] refer to it as occurring uncommonly. For this reason a report of a case is submitted.

L. W., an 82-year-old white female, was first admitted to the Kansas University Medical Center nine months before death complaining of shortness of breath and swelling of the legs. The history was obtained only with difficulty as the patient was deaf. Apparently, the present illness had begun seven months previously (16 months before death) with dyspnea and ankle edema. The patient's physician treated her with what was apparently ammonium chloride, and "two white heart pills two times a week." The patient took the medication only irregularly. One month before admission she developed increasing leg edema, up to the thighs, and abdominal enlargement. Dyspnea became severe, and a cough appeared. For two weeks prior to admission the urinary output had been reduced.

The family history revealed that one brother died of heart disease.

Physical examination on admission revealed that the patient was a poorly nourished and acutely ill white female in acute respiratory distress. BP=135/90, P=92, R=36 and T=96. She was mildly cyanotic. There was three to four plus edema of the extremities, abdomen, chest wall and of the right arm and breast. The neck veins were distended. Examination of the chest revealed that the AP diameter was increased, and respirations were rapid and labored. The apices were clear and there was dullness at both bases. The breath sounds were diminished at both bases, and in this region there were fine, moist, inspiratory rales, more marked on the left. The heart was enlarged with the point of maximal impulse in the anterior axillary line in the fifth interspace. The rate was regular with occasional premature ventricular contractions. The sounds were of poor quality. No murmurs were heard. Examination of the abdomen was unsatisfactory owing to edema of the abdominal wall, but a fluid wave was made out. The radial arteries appeared moderately sclerotic. The dorsalis pedis arteries could not be felt, presumably owing to peripheral edema.

The laboratory examinations were essentially normal except for the urine which contained one plus albumin, 10 to 15 white cells and eight red cells per high power field. The NPN varied between 26 and 50 mg. per cent with most of the results being around 40 mg. per cent.

X-rays and fluoroscopy revealed an enlarged heart with both ventricles enlarged. There was more enlargement of the right ventricle, however, than the left. The aorta was markedly sclerotic.

The electrocardiogram showed a left bundle branch block.

The patient was placed on the usual cardiac regime including 0.2 mg. of digitoxin O.D. and responded with steady improvement. Her chest cleared, the peripheral edema decreased. She was dismissed comfortable and ambulatory after three weeks of hospitalization.

The patient was readmitted 8½ months later with the chief complaint of pain in the chest. About 10 days before, the patient developed an upper respiratory infection with a progressive increase in cough. Five days later the patient developed chills and fever. Later, the patient developed tachycardia, dyspnea and finally disorientation. Two days before admission the patient developed pain in the right chest on inspiration.

Physical examination on admission revealed an acutely ill, dyspneic, disoriented and frightened woman. T=101.6, BP=120/80, R=28 and P=120. Examination of the head revealed herpes simplex and reddening of the mucous membranes of the tongue, pharynx and nose. The lungs presented a palpable and audible friction rub over the entire

*From the Department of Pathology, University of Kansas School of Medicine.

right chest wall. Fremitus was increased at the right base, dullness was present and rales were heard in this area. The pulse was 120 and was totally irregular with a well marked pulse deficit. A grade I systolic murmur was heard over the entire precordium. The liver was two fingers breadth below the costal margin and was tender. There was no peripheral edema.

The laboratory examination again revealed a trace of albumin and a few red and white cells per high power field in the urine. The white blood count equaled 22,100 with 92 per cent polymorphonuclear leukocytes, four per cent lymphocytes and four per cent monocytes. The NPN rose from 60 to 85 mg. per cent. The creatinine equaled 2.3 mg. per cent and the CO_2 combining power varied between 16 and 22 mEq. per cent. A nose and throat culture was positive for a few colonies of a Friedlander's bacillus. The cold agglutinations were positive in a dilution of one to 256. Streptococcus MG agglutinations were negative in all dilutions.

Chest x-ray revealed that the heart was far above normal limits in size with enlargement chiefly of the left ventricle, the aorta was tortuous but not widened, and there was diffuse softening of all bronchial trunk markings. An opacity was present at the right base involving primarily the middle and lower lobes. Diagnosis was an enlarged hypertensive contour heart, and pneumonia at the right base.

The electrocardiogram showed auricular fibrillation, and a left bundle branch block was still present. There had been some changes in the configuration of the QRS complexes in the limb leads since the previous tracing.

The patient was treated with penicillin, aureomycin and a routine cardiac regime. She was somewhat improved the day after admission, but on the third hospital day appeared more toxic than before and failed to rally to emergency treatment which included dihydrostreptomycin, chloromycetin and ACTH. She died in a few hours.

Autopsy revealed an enlarged heart, both ventricles and the right auricle being dilated and hypertrophied. The interventricular septum bulged into the lumen of the right ventricle. There was an old healed infarct in the right ventricle measuring approximately 1.5 by 1.5 by 0.3 cm., extending from endocardium to epicardium. This region was largely replaced by a broad band of scar tissue containing few inflammatory cells (Figure 1). Ante-mortem thrombi were found in the lumina of both ventricles and the auricular appendages of both atria. The left ventricle showed extensive areas of scarring, most intense around the A-V node and the left branch of the bundle of His. There was a fresh ante-mortem thrombus in the anterior descending branch of the left coronary artery. The posterior circumflex branch was small, but showed no arteriosclerosis. The right coronary artery was large, but was partially occluded by sclerosis.

The lungs showed evidences of congestion, multiple pulmonary emboli in the smaller vessels, and bronchopneumonia. The pneumonia present was consistent with the diagnosis of a virus pneumonia, but by no means suggestive of it.

There was severe chronic passive congestion of the viscera, especially the liver, and small old areas of softening in the brain.

This, then, represents a case of old infarction of the right ventricle. In retrospect, it is impossible to see how the diagnosis could have been made before death. The electrocardiograms merely showed a left bundle branch block, and (terminally) auricular fibrillation. The healed infarct in the right ventricle was associated with severe right sided failure as evidenced by x-ray. The autopsy showed severe chronic passive congestion of all viscera. The autopsy also showed, however, that a Bernheim's syndrome was present with bulging of the septum into the lumen of the right ventricle. This, in itself, would tend to produce right sided failure, and visceral congestion.

Summary

A case of healed infarction of the right ventricle is presented. This is a rare lesion. In this case this lesion would appear to be undiagnosable during life.

Bibliography

1. Fishberg, A. M.: Heart Failure, ed. 1, Philadelphia, Lea and Febiger, 1937, p. 618.
2. White, P.: Heart Disease, ed. 3, New York, The Macmillan Co., 1944, p. 483.

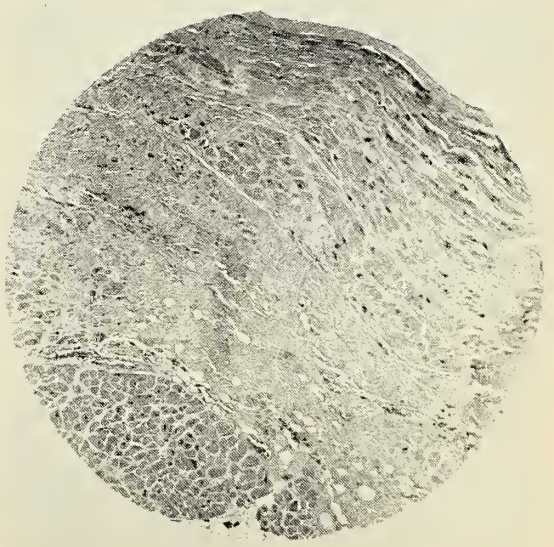


Figure 1. Healed infarct of right ventricle, x 70.

3. Von Glahn, W. C.: The Pathology of the Coronary Arteries, in Levy, R. L.: Diseases of the Coronary Arteries and Cardiac Pain, ed. 1, New York, The Macmillan Co., 1936, p. 143.
4. Kaufmann, E.: Pathology for Students and Practitioners (Translated by Reimann, S. P.), Philadelphia, P. Blakiston's Sons & Co., 1929, p. 60.
5. Mönckeberg, J. G.: Die Erkrankunges des Myocards und des Spezifischen Muskelsystems, in Henke, F., and Lubarsch, O: Handbuch der Speziellen Pathologischen Anatomie und Histologie, Vol. II, Herz and Gefässe, Berlin, Julius Springer, 1924, p. 387.

Errors in Diagnosis: How Made and How Avoided

Ralph Gorrell, M.D.

Clarion, Iowa

Errors in diagnosis are of vital importance to every physician. Until a diagnosis has been established, all knowledge of treatment technics cannot be applied.

There is no such thing as pure "medical" or "surgical" diagnosis. The patient requiring surgical procedures may well have a non-surgical disease also. The medical patient may develop a complication requiring prompt surgical attention or may have an underlying surgical disease, e.g. goiter, which prevents complete recovery.

Anyone who has been in practice, be it general or special, who keeps records and who follows his patients, realizes that he makes diagnostic errors. Analyzing a group of such errors reveals that they arise chiefly because facts are omitted or are misinterpreted. The various causes of errors are outlined below, together with methods of avoiding them.

Omission of facts	*How Avoided*
I. History	
a. Incomplete	
1. Concerning chief complaint	1. Careful analysis as to time, relation to other events, relief, duration, progressing severity.
2. Past medical history	2. Have patient fill out a self history form (see below); review history from time of birth.
3. Diet	3. Have patient write out a list of all foods actually eaten in previous three days; are food essentials being taken?
4. Psychosomatic story	4. Self history form. Review if signs do not fit symptoms, when complete examination negative, when psychic symptoms (nervousness, crying, unusual attitudes) indicate. Omissions are important.
5. Survey by systems; other complaints	5. Self history form plus review of each system of body. Follow up of diagnostic leads.
b. Inaccurate	
1. Ask questions that suggest symptoms; leading questions.	1. Ask questions that may be answered in one of several ways; don't use "yes or no" type questions.
2. Questions are not clear to patient.	2. Use common terms when asking about symptoms; does he understand you? Patient may be too embarrassed to stop a flow of questions.
3. Embarrassing questions, personal, marital, sexual, family harmony.	3. If the physician shows no embarrassment, the patient often takes such questions as a matter of course. Delay or avoidance of answering on the patient's part may be a diagnostic lead.

4. Answers do not rightly fit in with other parts of history or examination.	4. Question may not be understood. May be diagnostic pointer, e.g. patient complains of severe pain yet smiles and carries on usual activities.
5. Physician jumps at a "snap" diagnosis, then asks questions to support that diagnosis.	5. Use regular routine, even if the diagnosis seems evident. "A snap diagnosis is a short cut to the wrong diagnosis."
6. Patient mentions only symptoms that seem important to him.	6. Use regular routine history; use self history form.
II. Physical examination	
a. Inaccurate	
1. Normal not known to (a) Individual physician (b) Medical profession (not taught, not in literature)	1. Examine normal persons whenever possible. Don't overinterpret minor deviations from the usual. Re-examine in a month.
2. Sign thought to be present.	2. Is it there on repeated examinations? Can others detect it?
3. Mistaken interpretation of sign present.	3. A physical finding may have several causes.
b. Incomplete examination	
1. Physical examination incomplete, neglected or overlooked.	1. Make yourself follow a regular routine, to avoid overlooking important signs.
2. Special type of examination needed, e.g. neurologic, orthopedic.	2. Ask for consultation. If minor condition, learn relevant examination technics and range of normal.
3. Physical signs not known.	3. Look at illustrations depicting various physical signs (see below), in journals and books; watch for them in lectures.
III. Laboratory and X-ray Examinations	
a. Incomplete	
1. Omission of procedures relevant to this patient.	1. Follow up leads in history or physical examination.
2. Omission of routine procedures.	2. Early disease is often without symptoms, e.g. diabetes. Advanced disease may have few or no symptoms.
3. Place of screening procedures, on patients who may have serious disease or who wish a thorough workup.	3. Urinalysis, sedimentation rate, Wassermann test, red and white blood cell count, x-ray of chest (and possibly of abdomen), tuberculin test, in addition to history and physical examinations which are screening procedures themselves.
b. Inaccurate	
1. Is this the patient's x-ray or test? (a) Confusing names (b) Confusing numbers	1. Check name carefully; identify film. If serious diagnosis indicated by test or x-ray, repeat.
2. Inaccurate laboratory technic and indications (a) Wrong time for test	2. Beware the uncontrolled technician, in the small hospital or commercial laboratory, who uses "cookbook" methods. Beware *any* technician

(b) Wrong test for disease	who is not supervised by a competent diagnostician or pathologist. Don't order blindly, e.g. "blood chemistry." Don't spend patient's or hospital's money wildly.
(c) Normals not known	
(d) Good technic not used, or not followed.	
(e) Clear cut tests not known.	
(f) Tests used as substitutes for thinking.	
3. Misinterpreted x-ray or laboratory test because of belief that it alone is diagnostic.	3. Many "confirmatory" tests are not specific, e.g. an elevated uric acid is not essential to a diagnosis of gout. *Sooner or later, all tests must fit the patient.* Electrocardiograms are often overread.
(a) Pathologic report.	(a) Pathologists make errors too. Pathologists' standards of normal may not be true. Certain conditions cannot be diagnosed from slides alone.
IV. Course of disease and patient a. The course of a disease may be diagnostic or a new diagnosis may become evident as the underlying disease; a new disease may be added.	IV. Carefully observe and *record* the course. If atypical or if new symptoms or signs appear, look over the study and re-think the diagnosis. Is this a new diagnosis or a complication? Psychosomatic factors appear.
V. Response to therapy	V. Be sure that all diagnostic steps have been taken first. Be sure that the therapeutic trial is clear cut—give only one medication, one treatment or one operation. Is the therapy specific? Is the relief subjective, due to your encouragement?

Misinterpretation of all facts	*How Avoided*
I. History, physical examination, laboratory and x-ray course.	1. Review above, after completion of work up.
II. Sum of above may be misinterpreted.	
a. Differential diagnosis not complete	a. Use *printed* list of differential diagnostic possibilities. "Diagnosis is easy if the condition is remembered." The mind can carry only a limited number.
1. Generalized disease simulates local disease.	
2. Local disease simulates systemic disease.	
b. Diagnostic essentials not known or confused.	b. Learn the *essential* diagnostic points.
c. More than one disease may be present.	c. One disease does not rule out others. Keep an open mind for other diagnostic possibilities.
d. Attempt to force facts into a diagnostic picture.	d. Avoid speculation as to very rare diseases. The facts must fit the patient's condition.

During the time of history taking and performing physical examination, diagnostic possibilities come to mind. Jot them down on the margin of the sheet, and refer to them when summing up. These impressions may point the way to the correct diagnosis.

One should combine the attitude of the older clinicians, who thought clinically and considered the patient as a person, and the newer physician, who believes nothing that cannot be shown by x-ray or laboratory. *Both attitudes are incomplete in themselves.*

93RD ANNUAL SESSION
KANSAS MEDICAL SOCIETY

Kansas City, Kansas — April 27—May 1, 1952

Committees of the Wyandotte County Medical Society, hosts for the meeting, have been active for many months preparing an outstanding program and interesting social events. A partial list of the guest speakers follows:

Medicine	**Thomas Findley, M. D.,** Professor of Clinical Medicine, Tulane University, New Orleans, Louisiana.
	Bayard T. Horton, M.D., Associate Professor of Internal Medicine, Graduate School, University of Minnesota, Rochester, Minnesota.
	R. D. Pruitt, M.D., Assistant Professor of Medicine, University of Minnesota, Graduate School of Medicine, Mayo Foundation, Rochester, Minnesota.
Obstetrics and Gynecology	**Maurice E. Davis, M.D.,** Associate Professor, Obstetrics and Gynecology, University of Chicago, Chicago, Illinois.
Orthopedics	**George J. Garceau, M.D.,** Professor of Orthopedic Surgery, University of Indiana, Indianapolis, Indiana.
Pediatrics	**Phillip J. Howard, M.D.,** Department of Pediatrics, Henry Ford Hospital, Detroit, Michigan.
Surgery	**L. Kraeer Ferguson, M.D.,** Professor of Surgery, Graduate School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania.

The headquarters hotel will be the Town House, Kansas City, Kansas, and it is now time to make reservations. The first hundred applications received will be accepted at the Town House, and arrangements have been made to assign those in excess of that number to four hotels in Kansas City, Missouri, the Continental, the Muehlebach, the Phillips, and the President. All who desire accommodations will be cared for, and all hotel assignments will be made through the Town House.

Address requests for rooms to—

Manager, Town House, Kansas City, Kansas

PRESIDENT'S PAGE

Dear Doctor:

The Inter-Allied Professional Advisory Council had its first official meeting December 16 in Topeka. The Kansas Nurses Association, the Kansas State Dental Association, the Kansas Hospital Association, the Kansas Pharmaceutical Association, the Kansas Veterinary Medical Association, together with the Kansas Medical Society, met for organizational purposes. It is the expressed opinion of this council that it shall, in the future, assist in promoting better public relations, better economics, better government, better understanding of joint social obligations, and better health for all citizens of Kansas.

The meeting exemplified the spirit of Christmas, in so much as Inter-Allied professional transgressions were forgiven and trust was restored. There existed a spirit of motivation, a spirit to accomplish the ideas upon which the council was founded. I sincerely trust that this meeting marked only a beginning of a long succession of uninterrupted achievements! I am confident that there exist unlimited potentialities, provided of course that each member of his respective professional group gives proper support, respect and courteous consideration to each and every member of all other groups concerned.

I beg of each doctor, each Auxiliary member and each medical assistant to cooperate in the promotion of the principles of this council, and I am sure that by so doing each will have made some contribution to a better thinking and acting civilization. It is interesting to note that history records most civilizations have failed, not through external aggression, but by way of domestic corruption, and I am sure that each and every one of us feels privileged to take some part in the prevention of such disaster.

The preservation of unity and maintenance of competitive strength like democracy must maintain its position by action; the basic requirement being constant and judicious work by each and every participant.

The health of our nation has been under question since 1945. Those who are rightfully charged with the care have succinctly been accused of failure, yet the accusations have not been proven, but as late as the last week in December the President of the United States appointed another committee to study the nation's health. So loosen not your armor and let your defense fall, for then surely the road to defeat will be open.



EDITORIAL COMMENT

Interprofessional Advisory Council

The first meeting of the Interprofessional Advisory Council represents a historic occasion for Kansas. This is the first formal cooperative effort which is actively endorsed and participated in by the six major health service organizations of this state. Benefits from comparable meetings at a local level or through committee efforts of the various organizations have previously been experienced, but this marks the first time that all groups have met together in their common interest with full endorsement given by each of the organizations involved.

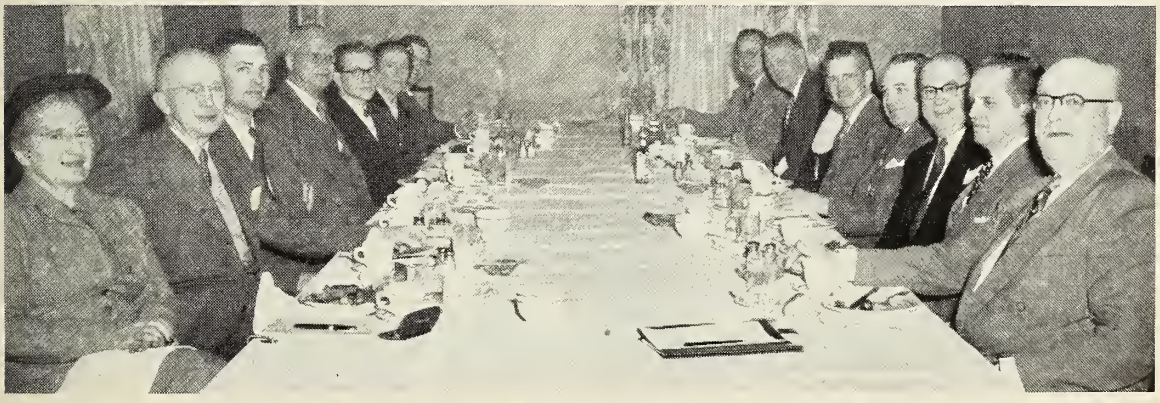
Major credit for this achievement must go to Dr. C. H. Benage, president of the Kansas Medical Society. It has been a dream of his which achieved reality at this meeting only after many hours of careful planning and diligent effort on his part. It represents a project that could well become one of the most significant programs of the Kansas Medical Society and is a personal contribution made possible through the efforts of the president.

The Interprofessional Advisory Council is exactly what its name implies. It is completely voluntary and non-official. Its actions can in no way bind or limit any of the participating societies. Its effectiveness will depend entirely upon the success of the various members in obtaining the cooperation of their own professional groups. And this very democratic structure provides the council with its major strength.

Membership in the council includes the Kansas Hospital Association, Kansas Medical Society, Kansas Nurses Association, Kansas Pharmaceutical Association, Kansas State Dental Association, and Kansas Veterinary Medical Association. Each association will have equal representation which at present stands at two voting and one ex officio delegate. Each association selects its own representatives, but the seriousness with which this new project is undertaken may be illustrated from the fact that almost all selected their president and one other high ranking official as delegates. The ex officio member is customarily the executive secretary. Meetings will be called from time to time as the need arises, and the first, held in Topeka on Sunday, December 16, 1951, served primarily to complete the organization. Dr. C. H. Benage was elected chairman of the group.

The purpose behind the Interprofessional Advisory Council could be expanded into a lengthy discussion. Brevity will sacrifice something in the story, but it might be condensed as follows. The council will be non-partisan in all its activities and will never reduce its efforts to subjects of petty differences of opinion. It is designed to provide a better quality of total health to the people of this state, and toward that end hopes to achieve a greater degree of cooperation between the major health service professions. The council hopes to coordinate activities of these major associations to where all can be more productive and successful. This applies not only to areas of service but to such programs as public relations as well. Differences of opinion between two or more of the groups represented will be frankly and fairly discussed in a sincere effort to resolve such problems. All will cooperate with the various efforts of the Kansas State Board of Health. And the council will aid in health legislation by reviewing in advance the bills proposed by the various member associations.

Once again, endorsement by the council does not commit the member associations, but council effort involves a higher degree of understanding than



Pictured above, at the first meeting of the Interprofessional Advisory Council, from left to right, are: Mrs. Ann Galt, Topeka; Mr. Paul A. Crowell, Pittsburg; O. W. Morris, D.V.M., Parsons; Mr. Charles S. Billings, Topeka; Mr. R. A. Molgren, El Dorado; Mrs. Clara B. Miller, Topeka; Mr. Lloyd C. Raish, Topeka; Fred B. Ogilvie, D.V.M., Kansas City; Edwin J. Frick, D.V.M., Manhattan; Sr. Mary Leona, Pittsburg; Otis B. Gentry, D.D.S., Girard; Frank C. Carothers, D.D.S., Garnett; Fred A. Richmond, D.D.S., Kansas City; Thomas R. Hood, M.D., Topeka; C. H. Benage, M.D., Pittsburg.

could be achieved without it. This factor, even if there were none other, would in itself altogether justify its continuance, for if the principal health agencies of this state are united in their endorsement of a piece of health legislation it almost certainly will work toward the benefit of the people and should have a better chance of passage than if support came from only one of the groups.

Happy New Year—1952

Last year was good to us, taking all things into account. We had our share of natural disasters but the flood left no epidemic in its wake, thanks to the services you rendered the people of this state. We had our share of problems, many remaining unsolved, but the new year enters with the public still free to choose their own doctor, and the standards of medicine remaining high.

We made mistakes, but we also experienced progress. More rural areas in Kansas have adequate medical care today than ever before. Medicine has greater skill than during any year in history, and as a result people live better and healthier and longer than was ever possible during the past.

Even greater progress is promised for the future, so a new year's greeting at this time portends much that was never dreamed possible in the past. So, in spite of what you fear and in spite of the problems ahead, this can be the greatest 12 months in history. Certainly, no one would turn the calender back, even if this were possible. Suppose you could. Suppose this were not 1952 but some other moment in history—would you trade the current year for any of them?

Happy New Year 1941. Germany is plundering Europe and before next Christmas rolls around Japan will have blasted Pearl Harbor. Then will follow the long desperate retreat out of Corregidor, Burma, the Pacific Islands before the weary road back can be taken. All this year you will work without penicillin because it did not become available until several years later. You had no knowledge of aureomycin nor the possibilities of aid from atomic radiation.

Or go back to 1930. We were mired deep in a depression. There were bread lines, and public welfare was just beginning to grow into big business. Collections were poor, prices low, industry was idle.

In 1930 your pneumonia patient recovered or died almost in spite of anything you could do, for the first of the modern antibiotics was not announced until later this year.

Suppose this were 1920. We are in a period of high economy after the war. Wages are good, prices are inflated. Everything is in turmoil, people are boisterous, confident, happy. In this year the League of Nations was organized. The Volstead Act had been in force for a few months, and women voted for the first time.

But your 10-year-old diabetic patient could not expect to see another Christmas because you did not have insulin to give him until this summer. The diabetic of 30 had an expectancy of just six more years but now, as you know, he may continue virtually a normal life span.

Happy New Year 1895. Some will still remember there were no airplanes or radios at this time. Marconi announced his wireless this year, and the Spanish-American War was just over the horizon. The big news came from a man named Roentgen who discovered a mysterious new ray of light that enabled him to see bones inside the body. This marked the beginning of a great new era in medicine, the benefits of which are continually expanding.

Would you prefer 1891 when the first diphtheria immunization was given, or 1885 when Pasteur announced the pasteurization of milk?

Or 1867? The Civil War was over. Lincoln was dead. The Ku Klux Klan was one year old, and the many distresses of uniting this nation were beginning to be felt. During this year Alaska was purchased and Canada became a dominion. The first typewriter was built, but the telephone waited nine more years before arriving on the scene.

This was the year that Lord Lister wrote his treatise on antisepsis and marked the beginning of modern surgery. Sutures were leather or hair and wounds were seared with oil or fire before this time.

Or Happy New Year 1842, just 110 years ago. Ether was used for the first time in a surgical procedure. Or 1816 when Laennec invented the stethoscope, or 1757 when James Lind suggested limes as a preventive for deficiency diseases, or back into the darker, drearier years behind with their plagues, their superstitions and their horrors.

But this is 1952. Our freedom is boundless in contrast with much of the world. Our standard of living and life expectancy exceed anything out of the past. And medicine is moving forward ahead of the calendar bringing even greater benefits to humanity. Medicine has experienced an awakening too in the fields of economics and public relations. Service in these areas presents a pioneering challenge that can produce sensational results.

So it will not be an easy year nor a period without trouble, but it provides medicine with the most glorious opportunities ever known. In the hope that everyone will cooperate to make this year outstanding, the Journal wishes each member of the Kansas Medical Society a most Happy New Year 1952.

Our Greatest Resource

A few weeks ago Dr. Franklin D. Murphy, chancellor of the University of Kansas, made a speech on conserving American resources. He presented some thought provoking ideas which are briefly summarized in the following paragraphs for the consideration of the medical profession.

The conservation of America's natural resources has received increasing attention over a period of many years. Considerable benefit has derived from these efforts, as illustrated by the reforesting projects of the lumber industry and others. More recently has water and soil conservation become important, and much improvement along these lines may be expected in the future.

America's greatest resource, however, is its youth, and here the adult population is more apt to criticize than help. Shocking examples of the degeneracy of today's American youth have been aired through the press and over the radio. A few boys accepted bribes for manipulating the outcome of sporting events, and immediately the entire athletic situation in America is condemned. Insufficient credit has been given to the thousands of young athletes who have played fairly and have not accepted bribes. A few of America's youth became addicted to narcotics, and immediately the nation becomes indignant and resentful. A few college students cheat on an examination, and at once the whole system of higher education in America is assailed.

The facts are that these problems are regrettably with us. They are extremely important and no effort is made to minimize the seriousness of such situations. But where did America's youth receive its encouragement in wrongdoing? The charge must, in all fairness, be laid to the responsibility of America's adults. Bribery has long been condoned in government and dismissed with a shrug to the effect that nothing can be done to prevent it. Examples of cheating are placed before the youth of America at every turn. Disobedience of the law, evasion of moral responsibility, those are common among the adults of our country, and even if we ourselves are not guilty of shortcomings in those areas we let it be known that we admire the person who did the wrong. We have tolerated gangsters and terrorists and have brought the high principles of religion into open disregard. Every youthful agnostic has an adult who made him that way. Every dishonest athlete has an adult who made it possible for him to be dishonest. Each child who believes it's smart to evade the law was taught this to be true. Therefore, the adult population today has been utterly careless in the conservation of its greatest resource. The youth of America is proud and strong and has more opportunities than ever before. They needed only one thing to bring success to the coming generation in the many areas where we as adults have failed, and that is encouragement. If we will teach youth the principles they should follow, they will work miracles.

Society Membership

Kansas, with a population of just under two million, receives most of its health protection from members of the Kansas Medical Society. A very few doctors of medicine in this state do not belong for one reason or another and of course play a part in the total health care picture. Cultists of course are also seeing patients, but except for those additions it is the doctors of medicine who are affiliated with this Society upon whom rests the responsibility of preserving health.

As of January 1, 1952, there are 1,712 members, including all categories, in the Kansas Medical Society. If distribution of physicians within Kansas were perfect, if each person in the state sought a member of this Society for his health needs, and if each member were equally active in his profession, each doctor would have a patient list of 1,168 persons.

During 1951, 1,477 members paid dues to this Society. Twenty-three are currently in service, 41 are on leave of absence, and 113 are honorary, all exempt from the payment of dues. In the entire Society only 58 have entered the new year delinquent.

In a recent notice we learn that there are 1,395 members of the Kansas Medical Society who are paid up members of the American Medical Association and that in addition to these, 69 paid dues in 1951 but are in arrears for their 1950 A.M.A. membership. This total represents in excess of 95 per cent of the entire dues-paying membership of this Society and offers a vastly improved picture over the situation of one year ago.

Chicago Clinical Conference

The clinical conference sponsored by the Chicago Medical Society, offering lectures on many aspects of medicine, will be held in the Palmer House, Chicago, March 4-7, 1952.

In response to popular demand, an increased number of demonstrations or work shop periods will be offered. They will include presentation of patients and scientific movies. Lectures will be one-half hour in length, given by outstanding teachers of the medical world on subjects of interest to both general practitioners and specialists. Scientific and technical exhibits will also be presented.

Case Reports from the University of Kansas Medical Center Tumor Conference*

Pre-Cancerous and Cancerous Skin Lesions

Edited by R. E. Stowell, M.D., and D. M. Gibson, M.D.**

The commoner pre-cancerous skin lesions constitute an extremely important group of diseases. These conditions are seen frequently by every general practitioner and specialist, and are lesions that should be adequately treated in the early stage, before they become malignant.

The following seven cases will be discussed under the subject of Keratosis and Radiation Dermatitis, and of Nevi and Melanoma.

Keratosis and Radiation Dermatitis

Case No. 51-101

W. G. V., a 68-year-old white man, was admitted with the chief complaint of prostatism, for which he had a transurethral resection. During his convalescence two small lesions, one on his forehead and one on the right cheek, which he had had for two years, were excised.

Pathology: Grossly the lesions were small grayish-white areas that were slightly elevated above the surface of the surrounding skin. Considerable keratin was seen on the irregular surface. This was a proliferative, pre-malignant lesion, without invasion of the basement membrane.

Diagnosis: Senile keratosis.

Case No. 51-102

E. R., a 62-year-old white woman, was admitted to the hospital because of a large area in the right flank which had been draining for the past six years. Her past history was that of pernicious anemia, for which she had received repeated courses of x-ray therapy during one year 23 years ago. A few years following this, the skin became scarred and thickened, but remained asymptomatic until six years ago, at which time it became irritated, with vesiculation and pruritus. The area, which was approximately 10 x 20 cm., became pigmented and showed an increasing amount of telangiectasis. Two months ago the blistering and exudation became more severe, and several small ulcers developed that did not heal. On hospitalization, a complete excision of this area was carried out, with split skin graft from the right side.

Pathology: Histologically, skin appendages were virtually absent. In some area the rete pegs showed some proliferation.

Diagnosis: Radiation dermatitis.

Case No. 51-103

C. W. J., a 75-year-old retired physician, was admitted on the plastic surgery service. The patient had had the fifth finger of the left hand amputated because of x-ray burns which he sustained approximately 35 years ago. On this admission there was evidence of radiation dermatitis over the fingers of both hands, with the appearance of a malignant lesion on the middle finger of the left hand. The left middle finger was amputated just distal to the metacarpophalangeal joint. The entire finger was submitted to the pathology laboratory.

Pathology: Examination of the lesion on the finger revealed changes similar to those seen in the previous case, except that they were more severe. In one area there was sudden transition to a well developed, well differentiated squamous cell carcinoma, which did not extend to the fascia.

Diagnosis: Radiation dermatitis with squamous cell carcinoma.

Discussion

Dr. Robinson: The first condition, senile keratosis, is a common lesion that is particularly prone to occur in those patients who have had exposure to the sun and wind for many years. If the lesions are discrete and easily removable, they should be excised. They should not be treated with a cautery because the cauterization may leave a little of the lesion, which may be a precursor of a carcinoma. Some of these lesions will become malignant, but it usually is not an especially serious matter since the malignancy can be completely removed while in an early stage.

The lesion from the second case shows the changes that take place in the skin with massive or repeated radiation therapy. There is patchy sclerosis and atrophy, pigmentation, papillomatosis, telangiectasis, epilation and anhydrosis. The skin shows alternate patches of white sclerosis intermingled with pigmentation. This is shining, slick white skin that doesn't stretch well and that feels dry; in late stages it may show ulceration and malignant change.

The third lesion, that of the doctor's finger, was a frank malignancy. That lesion was removed locally and a full thickness skin graft applied for coverage. It recurred and the finger had to be amputated. Many pioneer doctors have lost fingers, and some have lost their lives, because of lack of protection from radiation. With the knowledge we

*Cancer teaching activities aided by a grant from the National Cancer Institute.

**Postdoctoral clinical research fellow of the Damon Runyon Memorial Fund for Cancer Research.

have today, such things should not happen. Many long-standing radiation lesions of the extremities, particularly the kind that have been produced by repeated small doses of irradiation over a long period of time, will become malignant at a later date. Ghormley[1] reported 97 cases, of which about 20 per cent were malignant. Most of these lesions on the fingers have been caused by inadequate care in the use of the fluoroscope or radium needles or the handling of x-ray dental casettes by dentists.

Dr. Tice: Surgical excision is rather radical treatment for keratosis unless there is a question of malignancy. X-ray therapy (600 to 1,000 roentgens) localized to a small area will usually destroy this lesion. Frequently people have multiple keratoses, so that surgical removal of all of them would not be feasible; they may be treated adequately with x-ray applied to each lesion for one and one-half to two minutes. If the patient has a slight keratosis, with flaking of the skin, often the application of castor oil over the lesion every night will soften it.

So far as radiation dermatitis is concerned, if one treats cancer vigorously, one will injure normal skin. The theory of treating cancer is to give a dose large enough to kill the tumor; this will also sometimes destroy normal skin. It should be emphasized that repeated small doses of x-ray over a long period of time may be harmful, as shown by the last case. That doctor had probably not had x-rays on his fingers for over 15 years. He got his x-ray in small doses 20 to 30 years ago, and yet he developed a carcinoma. I don't like to treat cancer of the skin of the hand with x-ray because the tissue is so thin that an adequate dose to the tumor may destroy normal tissue.

Nevi and Melanoma

Case No. 51-104

A. W., a 10-year-old white girl, came to the plastic surgery out-patient clinic with the complaint of a mole on the end of her nose. There had been slight growth since birth. A nevus measuring three by four mm. was excised.

Pathology: The nevus cells were quite irregular in size and in some areas they were pigmented.

Diagnosis: Juvenile nevus.

Case No. 51-105

G. G., a 71-year-old white woman, was admitted on the neurosurgical service. The patient entered the hospital because of trigeminal neuralgia. A pregasserian section was done and, incidental to this operation, the incision was made to include a small black mole over the temporal area, from which sections were taken.

Pathology: The lesion consisted of a dermal mass of intertwining fibrous tissue with pigmented nevus cells scattered throughout. This was a completely benign lesion.

Diagnosis: Blue nevus.

Case No. 51-106

E. A. H., a 43-year-old white man, entered the hospital because of a recurrent pilonidal sinus, which was excised. During the patient's convalescence, a small pigmented nevus was excised from the lateral aspect of the arch of the left foot.

Pathology: The lesion from the foot was small, and there was a wide margin of excision. There were several small nests of nevus cells which tended to be separated and varied in size.

Diagnosis: Malignant melanoma.

Case No. 51-107

I. S., a 38-year-old white woman, entered the hospital on the plastic surgery service with the complaint of a mole of the left upper cheek, of three months' duration. When first noticed it was the size of a match head, smooth, brown and hairless. It began to enlarge rapidly until it became the size of a 10-cent piece, at which time she was advised by her local doctor to have it removed. A diagnosis of malignant melanoma was made on sections, and the patient was referred to this hospital. The line of incision was well healed. Two small nodes could be felt in the neck; however, the submental node and the preauricular node were not palpated. The enlarged nodes were considered probably hyperplastic. After consideration, a wide excision of the primary wound, with skin graft, and excision of the preauricular node were carried out, with a modified neck dissection. The specimen was submitted for pathological study.

Pathology: On the basis of the primary excision at another hospital, this was regarded as a melanoma. The material removed at this hospital revealed no evidence of tumor tissue.

Diagnosis: Malignant melanoma.

Discussion

Dr. Boley: In a dermal nevus the nevus cells are separated everywhere from the overlying epidermis by the connective tissue stroma. These lesions are usually benign. In a junctional nevus the nevus cells are in apposition to the epithelium with no intervening stroma. This type should always be regarded with suspicion, as it is generally believed to be the forerunner of a malignant melanoma. When such a junctional nevus occurs in a child, prior to the age of puberty, it is known as a juvenile nevus. Nevi in children, regardless of the histological picture, are almost universally benign. Spitz[2] reported a series of melanomas in childhood, only one of

which was apparently malignant. This phenomenon is probably linked with the onset of endocrine function at puberty. The term melanoma is reserved for the malignant counterpart of the nevus.

Dr. Helwig: The apparent freedom of prepuberal children from clinical malignant change in nevi is interesting, especially in view of the fact that placental transmission of melanoma from mother to baby sometimes occurs, with death of the infant from the malignant process.

Junctional nevi of the nail bed, hands, feet and genitalia show an extraordinarily high incidence of malignancy as compared to those of other areas, especially when figured on a basis of skin area.

Highly cellular blue nevi occur most frequently on the feet. They occur as subdermal or dermal tumors, which are frequently mistaken for sarcoma because of the variance in nuclear size and shape and the spindleform arrangement of cells. They may form rather bulky tumors at times, and I have known of two amputations for them. In my experience they are all benign.

Dermal nevi are commonly regarded as never becoming malignant;[3] nevertheless, I have seen three cases which metastasized and killed the patient.

Dr. Robinson: Melanoma is a most unpredictable type of tumor. It can be the most rapidly malignant of any tumor, or it may remain quiescent for long periods of time. There is one case recorded in which metastases occurred in the liver 32 years after enucleation for melanoma of the retina.[4]

Moles which are growing, which have been irritated or ulcerated, or which are in certain parts of the body subject to constant daily trauma, should be removed. Moles on the bottom of the foot and those which are shaved over daily can become irritated and should be removed. Most nevi below the knee, about the hands, and certainly those about the belt line or collar line where the clothes rub daily, probably should be removed if they seem to be making any trouble. You can't take off all moles and prevent melanomas. In the case of the little girl, a mole on the end of her nose was removed chiefly for cosmetic reasons. Some moles that look bad had best come off when the child is young because it may not be as safe to take them off when the child is past the age of puberty.

Malignant melanoma metastasizes most frequently by the blood stream, but wide removal of lymphatics is considered to give the patient his best chance for cure. In the last case, we did not radically dissect the neck because the lesion seemed to have been removed; we resected this area locally and covered the defect with a skin graft. I did not do a radical neck dissection; I compromised by taking out the adjacent regional nodes, cleaning out the upper superficial and deep nodes along the carotid. The sternocleidomastoid muscles or all of the deep cervical nodes were not taken out because such a procedure in a woman may cause her considerable psychic trauma, and will give her a shoulder drop and at least a marginal mandibular facial paralysis.

Dr. Helwig: In my experience with melanomas below the elbow and below the knee, I have never seen a popliteal or an epitrochlear metastasis. They have always metastasized to the groin or axilla.

Dr. Robinson: It has been found in large series of melanomas that regional node dissection along with radical removal of the local lesion gives a little better prognosis. The best prognosis is with melanomas of the head and neck; the next best is with those of the upper extremities; in other locations, they almost always recur and metastasize. Daland[5] reports an unusual case of melanoma of the ankle which spread by subcutaneous lymphatics up to the groin so that there were multiple subcutaneous nodules extending from the groin to the thigh. He did a strip operation in continuity and took off the skin from the ankle up to the groin, including the nodes, and that one patient has been alive over 15 years from the time of surgery. Bowers[6] has been doing quarter amputation for melanoma, which seems a little radical.

Dr. Johnson: Pack and others[7] have reported one of the largest available series of malignant melanoma, 862 cases. Of 275 cases treated by surgical methods and observed for five years, the survival rates were 17.7 per cent for localized melanomas and 15.6 per cent for melanomas with regional lymph node metastases. Since these two groups are not standardized either for previous inadequate treatment or for the site of primary tumor, the similarity of the rates is difficult to interpret. It is of interest that one of eight cases, or 12.5 per cent, survived five years, although the primary site in all of these was undetermined. We suspect that the five-year survival rate in malignant melanoma reflects the natural course of the disease rather than an effect of treatment.

Bibliography

1. Ghormley, R. K.: Surgical Treatment of Roentgen and Radium Dermatitis. Proc. Staff Meet. Mayo Clinic 16:: 69-70 (Jan. 29) 1941.
2. Spitz, S.: Melanomas of Childhood. Am. J. Path. 24: 591-609 (May) 1948.
3. Allen, A. C.: A Reorientation of the Histogenesis and Clinical Significance of Cutaneous Nevi and Melanomas. Cancer 2: 28-56 (Jan.) 1949.
4. Wilder, W. H.: Quoted by Schroeder, M. J.: Late Metastases of Melanosarcoma of the Liver. Med. J. and Rec. 119: 601-603, 1924.
5. Daland, E. M.: Radical Treatment of Malignant Melanomas of the Lower Extremities. Surg. Clin. N. Am. 27: 1136-1143 (Oct.) 1947.
6. Bowers, R. F.: Quarterectomy—Its Application in Malignant Melanoma. Surgery 26: 523-538 (Sept.) 1949.
7. Pack, G. T., Perzik, S. L., and Scharnagel, I. M.: Treatment of Malignant Melanoma—Report of 862 Cases. Calif. Med. 66: 283-287, 1947.

ACTIVITIES OF MEMBERS

Dr. John R. Anderson, of the Topeka State Hospital, was guest speaker at a meeting of the Kiwanis Club in El Dorado last month, addressing the group on mental health.

* * *

Dr. N. C. Nash, Wichita, spoke to the Minisa Chapter, National Secretaries Association, Wichita, at a recent meeting.

* * *

The following Topeka physicians were elected to the board of directors of the Topeka Blood Bank last month: Dr. Orville R. Clark, president; Dr. Robert Pfuetze, secretary; Dr. Louis Cohen, Dr. W. O. Martin, Dr. J. L. Lattimore and Dr. B. J. Ashley.

* * *

Dr. Fred Dozier, Herington, reviewed advances in medicine before the Rotary Club in that city on December 3.

* * *

Dr. Warren S. Peiper, Arkansas City, has made arrangements to be in Sedan on Friday of each week to work with doctors there on problems of radiology.

* * *

Dr. Donald P. Trees, Wichita, spoke on "Practical Medicine Relative to a Dental Practice" at a conference of dental societies held at Emporia in November.

* * *

Dr. E. J. Teeter, Goodland, discussed differential diagnosis of chest diseases before the staff of St. Francis Hospital in Colby on December 4.

* * *

Dr. Thomas Foster, Halstead, was named to the board of directors of the Kansas Mental Hygiene Society at a meeting held in Topeka early in December.

* * *

Dr. Doris Bixby, formerly of Wichita, is now practicing in Waynesville, North Carolina.

* * *

Dr. Norman L. Claybourn, Fort Scott, was speaker at a recent meeting of the Junior Chamber of Commerce in that city and told of the disadvantages of socialized medicine.

* * *

Dr. L. W. Hatton, Salina, was in Great Bend recently to address the P.T.A. there on the subject of sex offenders.

* * *

Dr. C. J. Bliss, Perry, was guest of honor at a community celebration held last month in recognition of more than 30 years community service. Speaker on the occasion was Dr. Milton B. Miller, Topeka.

Dr. Harry L. Church and Dr. C. H. Smith, Pittsburg, presented the program at the November meeting of the Crawford County Medical Assistants' Society.

* * *

Dr. Charles E. Vestle, Humboldt, addressed the registered nurses' study club in Iola on the subject of "Obstetric Analgesia" at the November meeting.

* * *

Dr. William K. Walker was named president of the Cedar Vale Chamber of Commerce last month.

* * *

Dr. Mary Glassen, Phillipsburg, was speaker at a P.T.A. meeting in Colby on December 5.

* * *

Dr. J. S. Hibbard and Dr. W. J. Kiser, Wichita, attended the Pan Pacific Surgical Association Congress in Honolulu in November.

* * *

The following physicians were named to office in the Wyandotte County Academy of General Practice recently: Dr. Ray Busenbark, president; Dr. F. J. Strick, vice president; Dr. Harvey L. Lloyd, secretary; Dr. K. C. Haas, treasurer; Dr. M. R. Fitzpatrick, trustee for one year; Dr. G. P. Neighbor, trustee for two years; Dr. W. C. Rasmussen, trustee for three years.

* * *

Dr. David W. Robinson, of the University of Kansas Medical Center, presented a paper, "Some Observations on Connective Tissue Growth and Tissue Culture in Relation to Keloid Formation," at a meeting of the American College of Surgeons at San Francisco in November.

* * *

Dr. M. D. McComas, Jr., a Concordia Rotarian, spoke to the club there on December 10 on the history of surgery and the qualifications required of today's specialists.

* * *

Dr. Garland L. Campbell has announced his resignation from the staff of the Arkansas City Medical and Surgical Clinic and will enter private practice in surgery and obstetrics in Arkansas City.

* * *

Dr. Orville R. Clark, Topeka, has been named a member of the Committee on Professional Education of the American Cancer Society. The committee will meet in New York in February.

* * *

Dr. Frederick A. Gans, formerly of Abilene, has announced the opening of an office in Salina for the practice of pediatrics. He was graduated from St. Louis University School of Medicine in 1946 and completed his training at the St. Mary's group of hospitals of St. Louis University in 1951.

BOOK REVIEWS

The Specialties in General Practice. Edited by Russell L. Cecil. Published by W. B. Saunders Company, Philadelphia. 818 pages, 470 figures. Price $14.50.

This book fills partially that large void between the general practitioner and the specialist. The editorial staff are all well recognized authorities in their respective fields, and the text is exceedingly readable. It gives the general practitioner a good perspective regarding specialty treatment and diagnosis and tells what the general practitioner can do to alleviate and improve many of the specialty diseases. This book is recommended to all general practitioners.—*W.L.V.*

* * *

Surgical Practice of the Lahey Clinic. By Members of the Staff of the Lahey Clinic, Boston. Published by W. B. Saunders Company, Philadelphia. 1014 pages, 784 illustrations, 509 figures. Price $15.

This volume is published almost 10 years after the first volume discussing surgical practice at the Lahey Clinic. It presents procedures which by frequent repetition have become standardized at that clinic. Consisting of 79 articles about a variety of subjects, (the thyroid gland; the stomach and duodenum; the small intestine, sigmoid and rectum; the biliary tract; the spleen, adrenal gland and pancreas; the breast; the pelvis; bones and joints; the brain, spinal cord and nerves; anesthesia and miscellaneous), it constitutes a valuable reference for the preoperative management, the operative technique, the postoperative care, the diagnosis, and many other important phases of almost every surgical disease.

It is abundantly supplied with numerous charts, photographs and excellent drawings illustrating the various problems. Many of the articles have appeared previously in surgical journals. It has been written by members of the surgical group at the Lahey Clinic. This book will serve as an extremely worth-while reference for anyone dealing with usual surgical procedure and should find a convenient place on any surgeon's bookshelf, or those interested in surgical diseases.—*C.F.K.*

Pulmonary tuberculosis could be wiped out if compulsory cooperation in annual mass chest surveys could be secured, as has been achieved in the Scandinavian countries. Similar dividends are not to be expected from survey procedures in gastrointestinal roentgenography, but pilot experiments are under way, in several institutions, that should clarify the magnitude of the problem and the frequency of unsuspected but curable lesions by routine methods. Mass chest surveys may be of considerable value in the discovery of unrecognized cases of heart disease.—*Merrill C. Sosman, M.D., The New England J. Med., April 12, 1951.*

DEATH NOTICES

John Alfred Dillon, M.D.

Dr. J. A. Dillon, 78, former superintendent of the Larned State Hospital, died at his home in Larned, December 3. He was graduated from the Kansas Medical College in 1893 and later spent a year in postgraduate study in Berlin and London. He began private practice in Larned in 1906, continuing there until he became head of the state hospital in 1927, a position he resigned in 1945. He was an honorary member of the Pawnee County Medical Society.

* * *

Otto Andrew Hennerich, M.D.

Dr. O. A. Hennerich, 66, a member of the Central Kansas Medical Society, died at his home in Hays, December 7. He was a graduate of St. Louis University School of Medicine with the class of 1909 and established practice in Hays in 1913, specializing in eye, ear, nose and throat work. He had been chief of staff of St. Anthony's Hospital and at the time of his death was an active member of the staff of Hadley Memorial Hospital.

* * *

Delbert Otto Haage, M.D.

Dr. D. O. Haage, 47, an active member of the Butler County Medical Society, died December 7 at Wichita after having suffered a cerebral hemorrhage at his home in August. He had been practicing in Augusta since 1935, specializing in pediatrics. He was a graduate of the University of Kansas School of Medicine, class of 1933.

* * *

Ingall Howard Neas, M.D.

Dr. I. H. Neas, 43, an active member of the Wyandotte County Society, died in Kansas City, December 25. He was graduated from the University of Kansas School of Medicine in 1935 and had practiced internal medicine in Kansas City since that time, except during World War II when he served as a lieutenant colonel in the Army medical corps.

BLUE SHIELD

Progress Report on Economy Program

The most significant progress which can be reported on the voluntary economy program of Blue Cross-Blue Shield in Kansas is the fact that the purposes and methods of the program are being enthusiastically accepted by Kansas physicians. Members from the Blue Cross-Blue Shield staff have met so far this winter with over 200 Blue Shield participating physicians in round table discussions. So far not one voice has been raised in complaint of the attempts being made to pursue this voluntary economy program. Actually many physicians are saying that they believe there is some unnecessary hospitalization and use of services in Blue Cross and that this service could be easily eliminated with the cooperation of doctors throughout the state.

The approach being made is based on a report to physicians of the trends in the hospital admission rate here in Kansas as compared with the national average for all Blue Cross plans in the United States. The following factual information reveals that in Kansas Blue Cross members are using hospitals to a considerably greater extent than throughout the country.

Number of Bed Patients Per 1,000 Members

	National Average Rate	*Kansas Rate*
1948	117	133
1949	118	142
1950	121	147

The above table shows that the rate of admission in Kansas is climbing faster than it is in the nation as a whole. The difference between the rate in Kansas and other individual Blue Cross plans is often as great as 40 or 50 cases per 1,000 members. Another significant fact is that while in Kansas the length of stay in the hospital compares favorably with the national average, our length of stay is over one day longer than in Texas and a half day longer than in Oklahoma. The reduction in the Kansas length of stay of only one-half day would mean a saving of nearly $500,000 per year. The information presented above is being frankly discussed with physicians in these round table meetings.

If the number of hospital admissions continues to rise as it has in the past, and if the cost of hospital care goes up with the rising inflation, it is evident that additional changes in Blue Cross benefits or rates will be necessary in 1953. However, physicians have expressed the feeling that an additional increase in Blue Cross rates will again tend to discourage membership on the part of the modest and low income group. This is the very group which needs Blue Cross-Blue Shield benefits the most. Thus we find this enthusiasm and willingness on the part of physicians to cooperate in trying to slow down the rising trend in the use of service. It is not only in the admission rate or the length of stay where these costs are mounting. The use of expensive drugs and laboratory workups is also on the rise. Some physicians have expressed the opinion that some of this use of laboratory and drugs may not be essential in patient treatment.

Blue Cross and Blue Shield stand solidly on the fundamental principle that the individual physician is the only arbiter in the treatment of his patient. Benefits of Blue Cross-Blue Shield have been designed to encourage this freedom of treatment and to avoid contractual limitations which might hamper the physician in his practice. It is the hope of the responsible groups in the Blue Cross-Blue Shield program that this freedom may be maintained through voluntary cooperation. For example, it would be unfortunate if it becomes necessary to eliminate certain worthwhile benefits such as unlimited use of approved drugs, solely because the cost of the service goes beyond the natural limits of normal practice.

If each individual physician will keep these costs in mind and operate on the principle of treating the patient according to his true medical needs, it could be assumed then that the cost would stay within its natural limits. However, the physician must play a responsible part in the explaining to his patients why a reasonable use of service is in the best interest of the entire program.

To summarize: (1) In the first few months of our economy program we have found acceptance and enthusiasm for it by over 200 physicians. (2) The consensus among physicians is that waste does exist and that such waste can be eliminated without interfering with the welfare of patients. (3) It remains now for us to continue to tell the story so that all physicians will become aware of the vital importance of keeping the cost of the voluntary Blue Cross-Blue Shield program within the reach of the low and modest income group. (4) Members of the Blue Shield Relations Committees and officers of county societies are urged to help in arranging for Blue Shield staff members to meet with county societies for a graphic presentation of the problem.

Make reservations now for the 93rd annual meeting of the Kansas Medical Society, April 27-May 1, 1952, Kansas City. Address requests for rooms to Manager, Town House, Kansas City, Kansas.

Senior Thesis from the University of Kansas Medical School*

The Effects of Changes in Serum Potassium Concentration on the Electrocardiogram

Bob B. Andrews, M.D.**

Kansas City, Kansas

Ringer recognized in 1883 that potassium and calcium salts must be present in the fluid perfusing the heart for the proper function of the heart; that too little potassium caused the contractions to become broader and broader until fusion of the beats occurred; and that too much potassium caused imperfect contractions which became weaker and weaker until the heart stopped.

More recently it has been recognized that potassium is the chief cation in the cell, being present normally in concentrations estimated between 140 and 160 mEq. per liter of cell water, and that it is present in the extracellular fluid in concentrations of from 4.0 to 5.5 mEq. per liter. Under abnormal circumstances the amount of potassium in the serum can be either reduced or increased, producing alterations in cardiac function such as Ringer had reported. These abnormalities have been recognized in a number of clinical conditions. In recent years these clinical conditions have received much attention.

Hypopotassemia can be produced by potassium entering the cell, by excretion in the urine, or by loss through body fluids in stools and intestinal secretions. Hypopotassemia has been found in patients with familial periodic paralysis, diabetic acidosis after therapy is begun, vomiting due to intestinal obstruction, postoperatively with prolonged administration of parenteral fluids, inanition, nephrosis with diuresis, and after administration of ACTH or adrenocortical hyperfunction.

Hyperpotassemia, on the other hand, can be produced by absorption through the gut of large amounts of ingested potassium, emergence of potassium from the cells, or blockage of excretion of potassium through the kidneys. Hyperpotassemia is practically confined to patients with renal failure, advanced dehydration, or shock, since normally the kidney will excrete the abnormal amounts of potassium. High serum potassium, however, is known to occur in patients with adrenal insufficiency and in diabetic acidosis before therapy. Potassium intoxication can be produced by parenteral injection of potassium salts, but it is difficult to produce by oral administration except in patients with renal failure, shock or adrenal insufficiency.

With the recognition of the number of clinical conditions in which changes in serum potassium concentration occur and the serious results that can obtain from these changes, it has become necessary to find a practical method for the estimation of potassium levels in the body. Methods for the direct determination of the serum potassium concentration are not always available or practical. However, the electrocardiogram, which is generally readily available to all, offers a method of estimation of potassium concentration in the serum since there are definite changes that occur in the electrocardiograph when either hypopotassemia or hyperpotassemia is present.

Hypopotassemia

Most of the early work on electrocardiographic changes in hypopotassemia was done on patients suffering from familial periodic paralysis. More recently, Bellet et al.[1] attempted to correlate the level of serum potassium and the electrocardiographic changes and to estimate the relation of the etiology to the electrocardiographic changes. These workers observed five distinct patterns of electrocardiographic changes. They are:

1. Depression of the ST segment accompanied by lengthening of the QT interval. The degree varied in general with the degree of hypopotassemia. In the more severe grades, the initial portion of the ST segment resembled an inverted T wave.

2. T wave inversion accompanied by QT prolongation, frequently followed by U waves. T wave inversion was of three types: (a) slight elevation of the initial portion of the ST segment followed by terminal downward dip (resembling that in acute pericarditis with subepicardial myocarditis), (b) the inverted T wave situated below the isoelectric line, and (c) inverted T wave manifested little or no deviation from the isoelectric line and except for prolongation of the QT segment resembled the inverted T wave seen in various types of myocardial diseases.

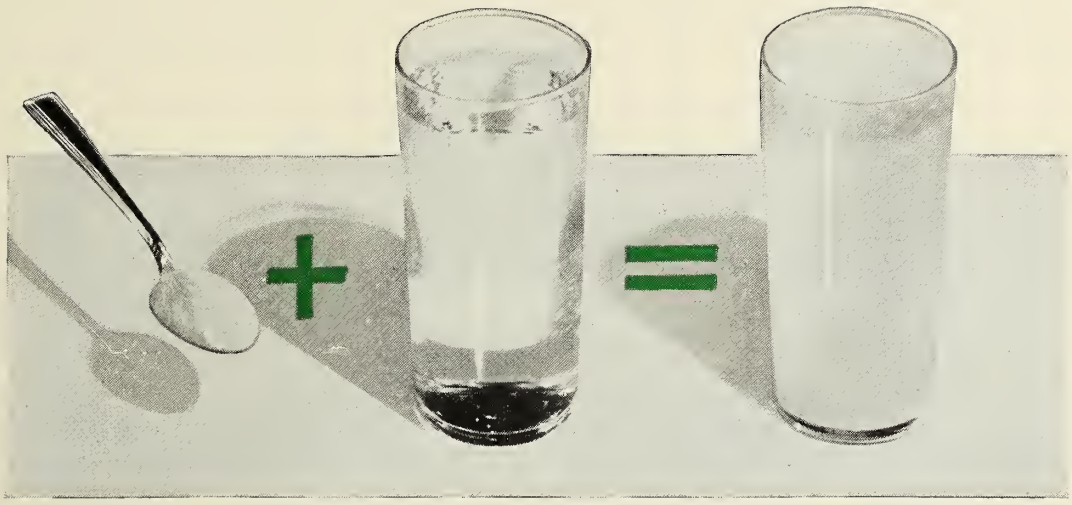
3. Upright T waves of normal amplitude or slightly above or below. The QT interval was prolonged and the T wave occupied the entire QT segment extending from the beginning of the S wave to the end of the T wave. There was usually no isoelectric period between the S wave and the initial ascent of the T. A few exceptions were seen where there was alkalosis with and without hypocalcemia.

*This is one of 11 senior theses selected for publication by the Editorial Board from a group of 15 judged the best by the faculty of the University of Kansas School of Medicine.

**Thesis written while the author was a senior student at the University of Kansas School of Medicine. Dr. Andrews is now serving his internship at St. Margaret's Hospital, Kansas City, Kansas.

Normohydration

FOR BOWEL REGULATION



Typically, the constipated stool is dehydrated, whereas the diarrheal stool or that induced by salines and irritants is hyperhydrated, containing free water.

When Metamucil is employed for the management of constipation, it is mixed in a full glass of cool liquid. The ingested liquid containing the mucilloid promotes normohydration.

METAMUCIL® is the highly refined mucilloid of Plantago ovata (50%), a seed of the psyllium group, combined with dextrose (50%) as a dispersing agent. G. D. Searle & Co., Chicago 80, Illinois.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

SEARLE RESEARCH IN THE SERVICE OF MEDICINE

4. T waves which were almost isoelectric accompanied by a terminal U wave. The end of the QT segment was not clearly demarcated in this pattern and it is probably best to refer to this as a QU wave. Following administration of potassium, the U wave disappeared and the T returned to normal amplitude.

5. T wave of normal amplitude. U wave unduly prominent and followed by a T wave after the downstroke had reached the isoelectric line. The QT interval proper was not prolonged; the prolongation involved the QU interval or the entire electrical systole.

The majority of the cases fell into types 1 and 2. Sixty-six per cent of the cases occurring from diabetic acidosis were of type 2 and had less frequent and less prominent U waves, whereas 53 per cent of the cases occurring from vomiting were of type 1 and had more frequent and more prominent U waves. They did find significant statistical correlation between the QT interval and serum potassium levels. They, however, thought that the differences of type in cases of different etiologies were due to the rapidity and manner of production of hypopotassemia and the effects of other electrolytes.

The division into such detailed changes, though, is not too practical for the average physician in determining the presence of hypopotassemia. In general, when the concentration of potassium in the serum falls below 3.0 mEq. per liter the following changes are likely to develop: slight prolongation of the QT interval in relation to the PT interval; rounded, prolonged T waves; and later decreased height and inversion of the T waves and possibly inversion of the P waves, extrasystoles and auriculoventricular block.

Low serum calcium has also been shown to produce prolongation of the QT interval. In this condition, however, the changes appear to take place with prolongation of the isoelectric level between the R and T waves, while in hypopotassemia there are alterations in the QRS conduction time and in the form of the T waves and RT segment. Martin and Wertman[12] conclude from the study of electrocardiographs in patients with diabetes that there is some factor other than low calcium or potassium that also causes prolongation of the QT interval, so this cannot be relied upon entirely as a diagnostic point in hypopotassemia. However, the T wave changes appear to be rather specific for potassium.

Nadler et al.[14] report that there was S-T segment depression in only 50 per cent of their cases of diabetic acidosis in which the serum potassium level was below normal. They also show S-T segment depression with a fall in blood pressure when serum potassium levels were normal, and it is well known that digitalis produces a depression of the S-T segment, so that, although these latter changes do not look exactly like the ones in hypopotassemia, these factors must be taken into consideration before hypopotassemia can be diagnosed in the electrocardiograph. Digitalis also produces inversion of the T wave, but causes prolongation of the P-R interval and not of the Q-T interval. So, even if digitalis were being given, one could recognize hypopotassemia by lengthening of the Q-T interval.

Hyperpotassemia

Winkler, Hoff and Smith[18] found by the intravenous injection of potassium chloride into dogs that there was first an increase in amplitude of the T wave, usually accompanied by shortening of duration. This became apparent in the dogs at concentrations of 5.0 to 7.8 mEq. per liter and increased progressively until it equaled the QRS complex in amplitude and brevity or until it was obscured by the onset of other changes. At 7.8 or 9.0 mEq. per liter the S-T segment began to sink below the isoelectric line and continued to drop as the concentration increased. The P wave began to widen and lose amplitude at 9.4 to 11.0 mEq. per liter and disappeared as the concentration rose. There was no change in the P-R interval up to the time the P wave disappeared. The QRS complex became wider at concentrations of 10.0 to 12.0 mEq. per liter.

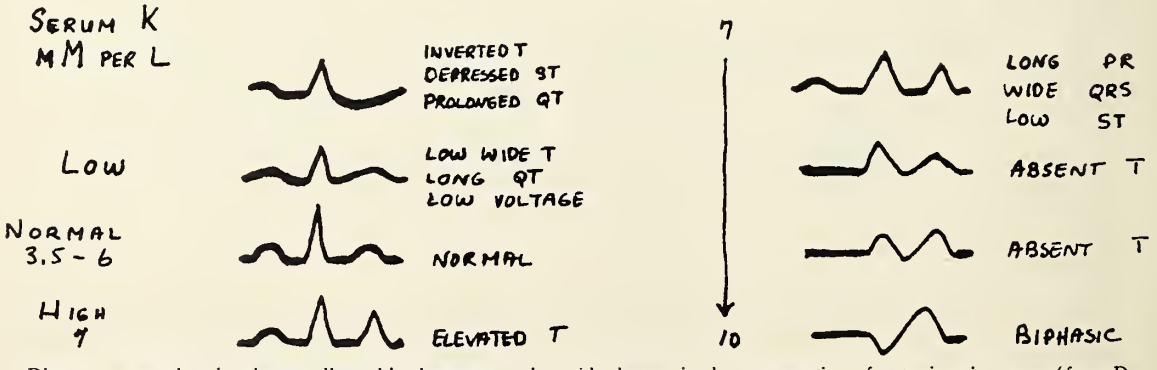
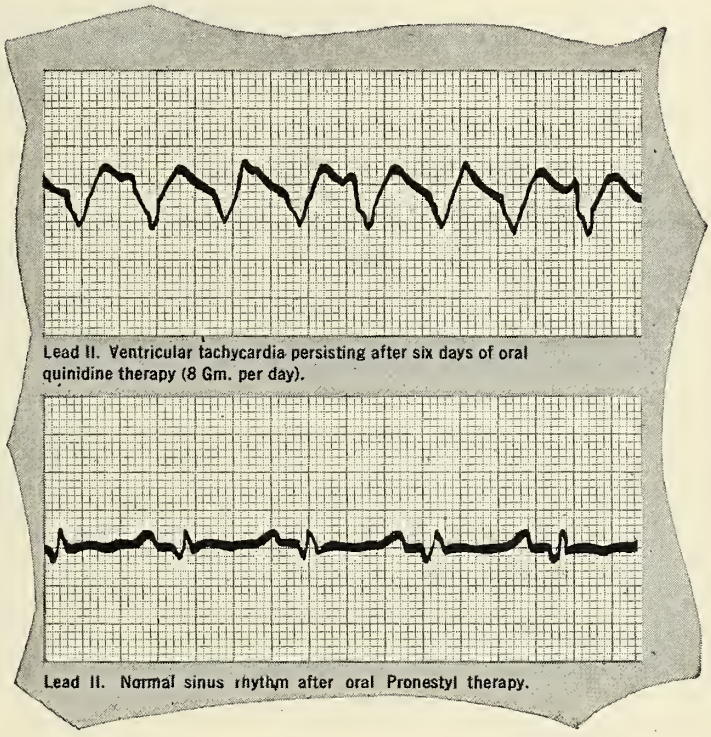


Diagram representing the electrocardiographic changes occurring with changes in the concentration of potassium in serum (from Darrow, New England Journal of Medicine, 242:1015, 1950).

a new drug . . .
for the treatment of ventricular arrhythmias

PRONESTYL *Hydrochloride*

Squibb Procaine Amide Hydrochloride



Lead II. Ventricular tachycardia persisting after six days of oral quinidine therapy (8 Gm. per day).

Lead II. Normal sinus rhythm after oral Pronestyl therapy.

Oral administration of Pronestyl is indicated in ventricular tachycardia and runs of ventricular extrasystoles. Intravenous administration is sometimes used in ventricular tachycardia and to correct ventricular arrhythmias during anesthesia. For detailed information on dosage and administration, write for literature or ask your Squibb Professional Service Representative.

PRONESTYL IS A TRADEMARK OF E. R. SQUIBB & SONS

Pronestyl Hydrochloride Capsules, 0.25 Gm., bottles of 100 and 1000.
Pronestyl Hydrochloride Solution, 100 mg. per cc., 10 cc. vials.

SQUIBB MANUFACTURING CHEMISTS TO THE MEDICAL PROFESSION SINCE 1858.

Death occurred at 14.0 to 16.0 mEq. per liter. These authors concluded that it was the level of serum potassium rather than the rate of injection that determined the toxicity of potassium.

Stewart et al.[15] in reviewing the literature noticed first an increase in the amplitude of the T wave, then a decrease in the amplitude of the R wave with an increase in the amplitude of the S wave. At about 10 mEq. per liter there was disappearance of the P wave and progressive depression of the RS-T segment and widening of the QRS complex, giving a smooth diphasic curve to the QRS-T complex.

Darrow[2] gives the sequence of changes with increasing concentration of potassium in the serum as the appearance of high, peaked T waves, increased duration of the PR interval leading to auricular standstill, biphasic curve with progressive delay in ventricular conduction and total arrhythmia leading to cardiac arrest.

Tarail[17] reported no toxic action below the level of 6.8 mEq. per liter, sometimes from 6.8 to 7.6 mEq. per liter, and regularly above 7.8 mEq. per liter. In this study, peaked T waves were the first sign of potassium intoxication in the electrocardiograph, but subsequent disturbances in the QRS complex, P-R interval, S-T segment and P waves occurred concurrently. His series consisted of only 19 patients with renal insufficiency, four of whom showed electrocardiographic effects of hyperpotassemia. It is generally considered that these effects begin to appear as the serum potassium level reaches 6.5 to 7.8 mEq. per liter and are quite regularly present at concentrations of 8.0 mEq. per liter and above. Heart block and irregular rhythm occur at 10 mEq. per liter or slightly above. The main effects are peaked T waves and increase in duration of the QRS complex.

Although increase in the severity of the electrocardiographic disturbance in a given patient can be said to be due to increase in concentration of serum potassium, the appearance of the electrocardiograph at a given elevated concentration of serum potassium differs considerably from case to case. So the electrocardiogram can be used as a rough indication as to proper therapy, but it cannot be depended upon as a substitute for serum potassium measurements.

Potassium Therapy

When the abnormality in the level of serum potassium is discovered, even though the exact mechanism leading to the alteration is not entirely clear, the proper steps to attain normal levels is an advantageous and many times a life-saving procedure.

If a patient can consume a regular diet, one usually need not worry about hypopotassemia because the average diet contains 90-125 mEq. of potassium per day. However, many of the patients in whom hypopotassemia develops are not able to take a normal diet so that other means for giving potassium must be sought. Oral administration is desirable if possible. Solutions of potassium chloride in concentration of 40 to 80 mEq. of potassium per liter (three to six gms. potassium chloride) given in 50 to 100 cc. amounts have proved efficacious. Fruit juices or other carries may be used if desired.

Concentrated meat broths have been shown by Howard and Carey[10] to contain as much as 1,000 or more mEq. of potassium per liter so that even small amounts of these could supply large amounts of potassium.

If oral administration is precluded by gastrointestinal dysfunction, or in emergency situations, parenteral administration must be used. In intravenous administration, care must be used in the concentration of potassium in the administered fluid and in the rate of injection so that high potassium levels are not reached suddenly. For this reason Darrow[2] recommends that solutions injected intravenously should not contain over 20 mEq. per liter in potassium concentration. Here the electrocardiogram can be used for quick estimates of potassium levels. Howard[10] has also shown that it takes several days for recovery from potassium deficit in debilitated patients so that potassium administration should continue for about six days or until food can be taken. Use of the electrocardiogram as a guide is desirable.

Since hyperpotassemia frequently occurs in patients with renal disease, administration of potassium in such patients should be used with extreme caution if not avoided entirely.

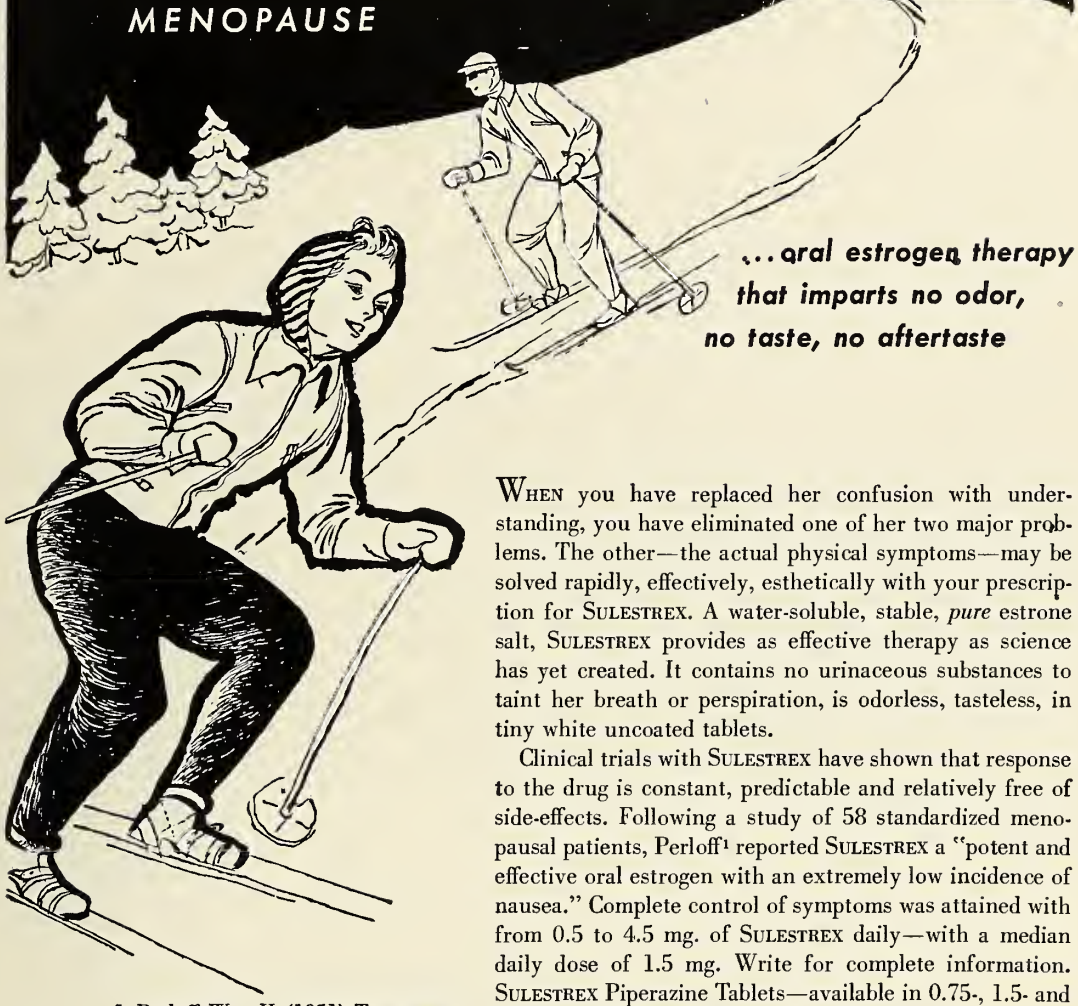
Should potassium intoxication occur, prompt treatment is necessary to prevent cardiac arrest. Calcium has been used to give transient increase in cardiac rate in patients with auricular standstill with ventricular rhythm. Finch et al.[5] have corrected potassium intoxication in patients in renal failure by use of three per cent saline solution. It has also been shown that deposition of glycogen is accompanied by a transfer of potassium into the cells, and hypertonic glucose intravenously has been used successfully to promote glycogen deposition and reduction of serum potassium level.

Summary

1. The chief electrocardiographic changes resulting from hypopotassemia are prolongation of the QT interval, prolongation and inversion of the T wave and possibly inversion of the P waves, extra systoles, and auriculoventricular block. Hypocalcemia may also produce prolongation of QT interval, but the T wave changes are rather specific for potassium.

Still leading the active life—

RIGHT THROUGH THE MENOPAUSE



...oral estrogen therapy that imparts no odor, no taste, no aftertaste

When you have replaced her confusion with understanding, you have eliminated one of her two major problems. The other—the actual physical symptoms—may be solved rapidly, effectively, esthetically with your prescription for Sulestrex. A water-soluble, stable, *pure* estrone salt, Sulestrex provides as effective therapy as science has yet created. It contains no urinaceous substances to taint her breath or perspiration, is odorless, tasteless, in tiny white uncoated tablets.

Clinical trials with Sulestrex have shown that response to the drug is constant, predictable and relatively free of side-effects. Following a study of 58 standardized menopausal patients, Perloff[1] reported Sulestrex a "potent and effective oral estrogen with an extremely low incidence of nausea." Complete control of symptoms was attained with from 0.5 to 4.5 mg. of Sulestrex daily—with a median daily dose of 1.5 mg. Write for complete information. Sulestrex Piperazine Tablets—available in 0.75-, 1.5- and 3.0-mg. potencies—are at all pharmacies.

Abbott Laboratories, North Chicago, Illinois. Abbott

1. Perloff, Wm. H. (1951), Treatment of the Menopause. II. American J. Obst. & Gynec., 61:670, March.

Sulestrex TRADE MARK

Piperazine Tablets

(PIPERAZINE ESTRONE SULFATE, ABBOTT)

2. The chief electrocardiographic changes resulting from hyperpotassemia are high peaked T waves, depression of the S-T segment, disappearance of the P wave, depression of the RS-T segment, giving a smooth biphasic curve to the QRS-T complex. At a given level of serum potassium, the appearance of the electrocardiograph may vary from patient to patient, but it may be used as a rough estimation of potassium level.

3. A few aspects of therapy are mentioned, and use of the electrocardiogram as a guide to therapy is advocated.

Bibliography

1. Bellet, S.; Steiger, W.; Nadler, C.; and Gazes, P. Electrocardiographic patterns in hypopotassemia. Am. J. Med. Sc. 219: 542, 1950.
2. Darrow, D. C. Body fluid physiology. N. Eng. J. Med. 242:1014, 1950.
3. Eliel, L. D.; Pearson, O. H.; and Rawson, R. W. Postoperative potassium deficit and metabolic alkalosis. N. Eng. J. Med. 243: 471, 1950.
4. Fenn, W. O.; Potassium in physiological processes. Physiol. Reviews. 20:377, 1940.
5. Finch, C. A., and Marchand, J. F. Cardiac arrest by action of potassium. Am. J. Med. Sc. 206:507, 1943.
6. Follis, R. H. Jr.; Orent-Keiles, E.; McCollom, E. V. Production of cardiac lesions by low potassium diet. Am. J. Path. 18:29, 1942.
7. Fulton. J. F. A Textbook of Physiology, W. B. Saunders Co., 1950, pp. 694-696.
8. Govan, C. D. Jr.; Weismeth, W. M. Potassium intoxication. J. Ped. 28:550, 1946.
9. Holler, J. W. Potassium deficiency occurring during the treatment of diabetic acidosis. J.A.M.A. 131:1186, 1946.
10. Howard, J. E., and Carey, R. A. The use of potassium in therapy. J. Clin. Endocrin. 4:691, 1949.
11. Martin, H. E., and Wertman, M. Electrolyte changes in diabetic acidosis. J. Clin. Invest. 26:217, 1947.
12. Martin, H. E., and Wertman, M. Eelctrolyte changes and the electrocardiogram in diabetic acidosis. Am. Heart J. 34:646, 1947.
13. Miller, H. C., and Darrow, D. C. Production of cardiac lesions by repeated injections of desoxycorticosterone. J. Clin. Invest. 29:601, 1942.
14. Nadler, C. S.; Bellet, S.; Lanning, M. Influence of the serum potassium and other electrolytes on the electrocardiogram in diabetic acidosis. Am. J. Med. 6:838, 1948.
15. Stewart, H. J.; Shepard, E. M.; Horger, E. L. Electrocardiographic manifestations of potassium intoxication. Am. J. Med. 5:821, 1948.
16. Stewart, H. J.; Smith, J. J., and Milhorat, A. T. Electrocardiographic and serum potassium changes in familial periodic paralysis. Am. J. Med. Sc. 199:789, 1940.
17. Tarail, R. Relation of abnormalities in concentration of serum potassium to electrocardiographic disturbances. Am. J. Med. 5:828.
18. Winkler, A. W.; Hoff, H. E., and Smith, P. K. Electrocardiographic changes and concentration of potassium in serum following intravenous injection of potassium chloride. Am. J. Physiol. 124:478, 1938.
19. Winkler, A. W.; Hoff, H. E.; and Smith, P. K. Cardiovascular effects of potassium, calcium, magnesium and barium. Yale J. Biol. Med. 13:123, 1940.

Tuberculosis Death Rate Dropping

The nation's death rate from tuberculosis dropped about nine per cent in 1949, to 26.2 per 100,000 population, according to a recent release from the Federal Security Agency. During the first 11 months of 1950, a further decline of 15 per cent occurred, although the latter figure is provisional and may require revision when the 12th month of the year is included. The death rate in the United States has shown a downward trend for almost 50 years, except for a slight rise in 1917 and 1918, during the influenza epidemic of World War I.

Patronize Kansas Medical Journal Advertisers.

COUNTY SOCIETIES

Dr. John D. McMillion was elected president of the Montgomery County Society at a meeting held at the Booth Hotel, Independence, early in December. Other officers chosen are: Dr. W. F. Dreyer, vice president; Dr. William T. Read, secretary; Dr. G. C. Bates, treasurer.

* * *

The following officers were chosen to head the Barton County Society at a meeting held December 4: president, Dr. M. W. Carlson, Ellinwood; vice president, Dr. T. J. Brown; secretary-treasurer, Dr. A. W. Beahm; delegate to state society, Dr. Robert C. Polson; alternate, Dr. L. R. McGill; board of censors, Dr. James Gaume, Dr. Don Kendall and Dr. E. H. Atkin.

* * *

Two members of the faculty of the University of Kansas School of Medicine presented the scientific program at a meeting of the Sedgwick County Society held at the Allis Hotel, Wichita, December 4. Dr. William Williamson spoke on "Differential Diagnosis of Surgical and Non-Surgical Diseases of the Spinal Cord," and Dr. E. Grey Dimond discussed "Cardiac Catheterization and its Application in Medical Diagnosis."

* * *

Dr. Byron Ashley was named president of the Shawnee County Society at a meeting held at the Hotel Jayhawk, Topeka, December 4, and Dr. Harry J. Davis was chosen to serve as president-elect. Dr. Francis Collins is vice president, Dr. D. B. Foster is secretary, and Dr. Willis L. Beller is treasurer. A guest, Mr. W. Van Murchie of St. Joseph, Missouri, spoke on "Organized Chaos versus Regimented Confusion."

* * *

Members of the Crawford County Society entertained the Auxiliary at a dinner meeting at Pittsburg on November 29. The scientific program, "Diseases of the Colon," was presented by three guests from Wichita, Dr. N. C. Nash, Dr. B. E. Stoffer and Dr. E. L. Mills. The following officers were elected: president, Dr. Paul Leffler; vice president, Dr. Howard Elliott; secretary-treasurer, Dr. Earl Miller.

* * *

The Nemaha County Society held a joint meeting with the Auxiliary on November 27 at the Community House in Seneca. A buffet dinner was served. Dr. Paul C. Laybourne, of the University of Kansas Medical Center, was guest speaker.

* * *

Members of the McPherson County Auxiliary

Meat... Its Place in the Dietary Management of Nephritis

The formerly held tenet that protein intake should be restricted for all patients with impaired renal function, in order to afford the kidney physiologic "rest," is no longer valid.[1] Except for infection and some neoplastic and traumatic disorders, the treatment of renal disease is nonspecific and essentially symptomatic. The clinical problem centers largely on diet regulation, in the hope of stimulating the kidneys to improve impaired function, without unduly risking harm.

Even in the presence of azotemia, a protein intake of 60 to 80 Gm. per day has not been found harmful to the renal patient. Low protein intake, on the other hand, together with urinary loss of protein may encourage the development of asthenia, anemia, hypoproteinemia, and edema.[2] Also pertinent to the dietary management in renal disease is the experimental finding that high protein diets in normal dogs promote higher urea clearance and greater renal blood flow than do low protein diets.[3,4]

Except in anuria, a protein intake adequate to maintain nitrogen balance has been suggested.[1] Although as little as 30 to 40 Gm. of protein per day may suffice for this purpose in the fever-free patient at bed rest, few occasions arise when 1 Gm. of protein per day per kilogram of body weight may not be given safely. In the presence of significant proteinuria, unless specifically contraindicated, the dietary protein may be increased beyond that amount in order to counterbalance the urinary protein loss.

Contrary to the still prevalent ancient belief among the laity, red meats are just as harmless to the renal patient as white meats; nor is there evidence that plant proteins are more beneficial in nephritis than animal proteins. As with the normal person, the dietary protein of the patient should be of high biologic value.

Meat, because of its high content of biologically complete protein, may contribute valuably to the protein needs of the nephritic patient. The nutritional importance of meat, however, is not limited to its contained protein. Meat also contributes highly significant amounts of iron and of the vitamin B complex, including niacin, pantothenic acid, pyridoxine, riboflavin, thiamine, and the newly discovered vitamin B_{12}. Other salient features of meat in the dietary of the patient are its high palatability, its stimulation of the digestive processes, its satiety value, and its easy and practically complete digestibility.

1. Mann, G. V., and Stare, F. J.: Nutritional Needs in Illness and Disease, Handbook of Nutrition, American Medical Association, ed. 2, Philadelphia, The Blakiston Company, 1951, chap. 17, p. 351.
2. Weiss, S.: Diet and Bright's Disease, Connecticut M. J. 5:496, 1941.
3. Jolliffe, N., and Smith, H. W.: The Excretion of Urine in the Dog: II. The Urea and Creatinine Clearance on Cracker Meal Diet, Am. J. Physiol. 99:101, 1931.
4. Van Slyke, D. D.; Rhoads, C. P.; Hiller A., and Alving, A.: The Relationship of the Urea Clearance to the Renal Blood Flow, Am. J. Physiol. *110*:387, 1934.

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

ACCEPTED COUNCIL ON FOODS AND NUTRITION AMERICAN MEDICAL ASSOCIATION

American Meat Institute
Main Office, Chicago... Members Throughout the United States

were guests of the medical society at a dinner meeting in Lindsborg on November 29. A male quartet from Bethany College provided the program for the evening.

Officers of the society were elected at a meeting held December 12, and the following were chosen: president, Dr. E. C. Brandsted; vice president, Dr. G. E. Finkle; treasurer, Dr. Robert Sohlberg; secretary, Dr. A. H. Dyck; delegate, Dr. Weir Pierson; alternate, Dr. W. R. Jones; censors, Dr. C. R. Lytle, Dr. W. R. Jones and Dr. A. M. Lohrentz.

* * *

Dr. Melvin A. Rabe was elected president of the Leavenworth County Society at a meeting held on December 10. Dr. C. A. Bennett was named vice president, and Dr. V. A. Christ was chosen as secretary.

* * *

Dr. and Mrs. L. G. Graves entertained members of the Stafford County Society and Auxiliary at a covered dish dinner at their home in St. John on December 11.

* * *

New officers of the Clay County Society, who will serve also as officers of the Clay Center Municipal Hospital, are: president, Dr. F. C. Shepard; vice president, Dr. F. D. Taylor; secretary-treasurer, Dr. Guy B. McIlvain.

* * *

A meeting of the Pratt County Society was held at the Hotel Roberts, Pratt, last month following a Christmas dinner. Dr. M. E. Christmann was elected president of the group with Dr. F. G. Freeman as vice president and Dr. R. W. Edwards as secretary-treasurer. A film on the University of Kansas Medical Center, "Beyond the Towers," was shown.

* * *

The Harvey County Society met December 10 at the Newton Country Club for a dinner and election of officers. Dr. W. C. Dreese, Halstead, was named president; Dr. J. B. Nanninga, vice president; Dr. A. S. Hawkey, secretary-treasurer; Dr. John W. Hertzler, censor.

* * *

Eighty members of the medical societies and auxiliaries of a tri-county area including Sumner, Cowley and Kay counties, were present at a meeting held at the VFW Memorial Building in Arkansas City on December 13. Speaker for the evening was Mr. Virgil Hill of Topeka, who was introduced by Dr. G. Allen Howell, Wellington.

Officers of the Cowley County Society were elected at a separate session held later in the evening. Dr. H. H. Jones, Jr., Winfield, was chosen president; Dr. Roscoe F. Morton, Arkansas City, vice president; Dr. A. Y. Wells, Winfield, secretary; Dr. E. W. Hellweg, Arkansas City, board of censors.

* * *

The Bourbon County Society and the Mercy Hospital staff held a joint meeting at the Burke Street Hospital, Fort Scott, December 19. A medical movie was shown.

* * *

Dr. Edward J. Grosdidier was elected president of the Wyandotte County Society at a meeting held December 18. Other officers are: Dr. W. F. Roth, Jr., vice president; Dr. G. R. Peters, secretary; Dr. E. A. Reeves, treasurer; Dr. F. J. Nash, censor; Dr. Agnes Robbins, Dr. Emmerich Schulte and Dr. Wray Enders, delegates.

Sectional Meeting of A.C.S.

A sectional meeting of the American College of Surgeons will be held at the Hotel Adolphus, Dallas, Texas, February 4, 5, and 6. Kansas physicians are invited to attend.

The program will include two days of scientific sessions at the hotel and a day of teaching clinics and demonstrations in Dallas hospitals. New surgical motion pictures will be shown, including several which were prepared especially for the Cine Clinics at the 1951 clinical congress and a stereoscopic colored film on radical resection for carcinoma of the stomach which is attracting national attention.

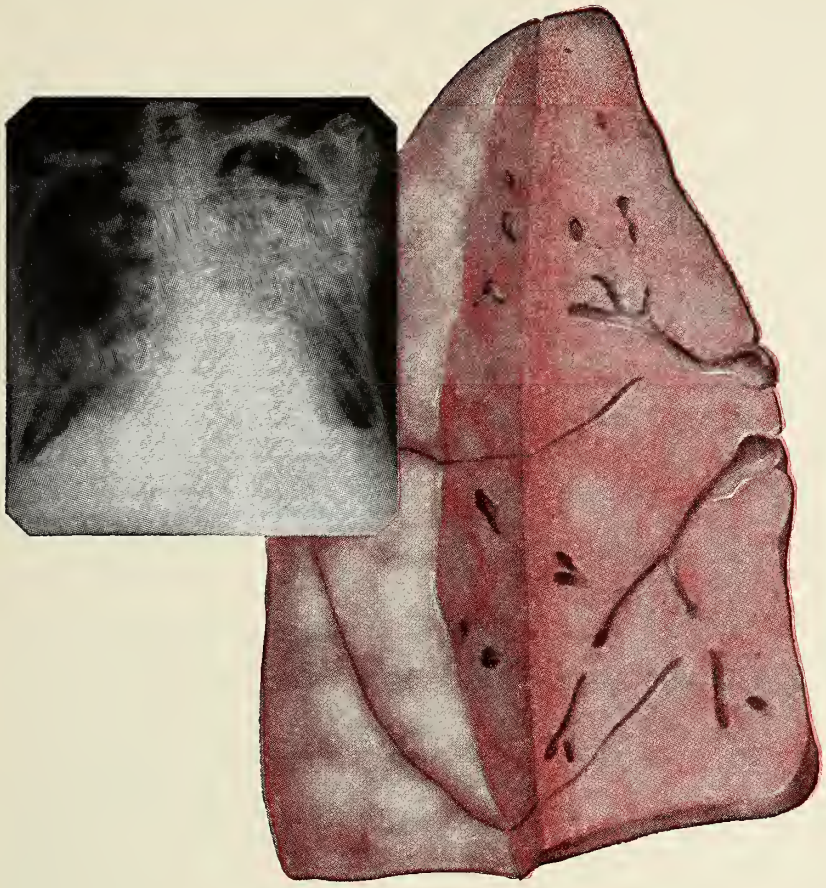
Hotel accommodations may be obtained by writing Mr. James R. Shaffer, Hotel Adolphus.

Economy Governs Socialization

The economic condition of the countries of Europe will determine whether socialization of medical care abroad will increase or decrease in the next few years, reported Dr. Austin Smith, editor of the Journal of the American Medical Association, on his return from a recent European trip.

"The degree of the socialization of medical care varies country by country," he said, "and the response to it varies in accordance with the occupational interest and the economic status of the individuals. England has a greater degree of socialized medicine than any other country and its system, while it may be modified from time to time so that the people may pay more for what they get, will not be cast out by the present Conservative government or by any other government so long as the country has or gets the money to pay its huge cost."

Dr. Smith reported European respect for the American people and for American industry, but little regard for our government, its representatives and our policies.



in bronchopneumonia:

Clinical responses in bronchopneumonia, Terramycin-treated, are characterized by the same promptness noted in primary atypical and lobar pneumonia. In a series of 31 cases there was "a good response in all cases, as manifested by the fall of temperature to normal in 24 to 48 hours, and by the improved clinical appearance of the patient." Follow-up x-rays made in 10 to 14 days "were completely negative or showed marked improvement."

Potterfield, T. G., and Starkweather, G.A.:
J. Philadelphia General Hosp. 2:6 (Jan.) 1951.

CRYSTALLINE TERRAMYCIN HYDROCHLORIDE

available | *Capsules, Elixir, Oral Drops, Intravenous, Ophthalmic Ointment, Ophthalmic Solution.*

ANTIBIOTIC DIVISION Pfizer CHAS. PFIZER & CO., INC., *Brooklyn 6, N. Y.*

THE KANSAS PRESS LOOKS AT MEDICINE

Editor's Note. In this section the Journal reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

Here He Goes Again

In spite of the fact that this government is exerting every effort toward an adequate military defense and is raising taxes on everybody and looking for more sources of revenue, President Truman takes time out from these necessary duties to insist that this is the time to put socialized medicine into effect, a pet project which he has advocated since 1945. President Truman says if anyone can show him a better way to protect the health of the people he will gladly go along with it.

If President Truman is competent to advise the country on health measures, he knows that right at this time there are about 70 million people, nearly half our population, who are covered by satisfactory, efficient and cheap prepaid health and hospital insurance, all of which would have to be scrapped if he has his way. It is cheap and it is voluntary, compared to the compulsory plan proposed by Mr. Truman. The most generous interpretation of socialized medicine would not refer to it as insurance. Insurance is paid voluntarily. Socialized medicine is not insurance, it is a tax and a deduction will be made from every pay check, in addition to deductions already made.

The proponents of this socialized scheme advance the specious theory that if one believes in a free public school system, one should not object to "free medicine" controlled and paid for by the government. There is considerable difference between a public school system to give every individual a chance for mental equipment with which to earn a living and care for himself, and furnishing that individual, at state expense, the various necessities and luxuries of life.

"Cradle to the grave security" sounds appealing, but a nation which accepts this plan sells its independence and admits that its people cannot care for themselves. The American medical system is the wonder of the world. We have more doctors per capita than any other nation in the world except Israel, which is now filled with refugee doctors driven from other lands. This American system is the result of enterprise and initiative of American doctors, who over a long period have determined to make American medicine supreme. Why should we in this country ever consider scrapping the greatest medical system in the world to copy experiments of nations which cannot match ours in medical progress?

The main importance of socialized medicine is that it is not a thing complete in itself, but part of the camouflaged attempts to give the government either ownership or absolute control over the people's resources and the people as individuals. According to classic Communist dogma, socialized medicine is one of the most important in that direction. If it cannot be achieved all at once, an attempt is made to bring it on by degrees. One form is to authorize federal handouts to medical schools. Another would make the government responsible for the medical care of persons within certain ages, anything to get a start. It is a fine example of what has been aptly called creeping socialism.

The American people are going to have to determine whether they wish to have their medical care administered with another immense federal bureau, with all its entangling red tape, or continue the gradual evolution in the distribution of high quality medical service under the present system.—*F. J. C. in Kingman Journal.*

* * *

An Undermining Process Rather Than Curing All Ills

The British medical fraternity is a version of socialized medicine. Various reasons are behind this. One of the most important is that, under a policy of cradle-to-the-grave alleged security, there has been an alarming decline in the sense of family responsibility and individual duty. Young people who can afford it no longer help aged and sick relatives —they just let the state do it all.

Another reason, reliable reports from England say, is that this attitude of mind has also spread to many doctors. The civil servants give all the orders, and there's nothing much for the doctors to do but go through the motions of practice in a purely routine fashion. There are no incentives to work hard, to experiment, and to seek new horizons of medical knowledge.

It is inevitable that such a situation should exist under socialism. It is an undermining process— for the doctor and for all others who are enmeshed in the dreary system. And what is true in England would surely be true here if we should ever adopt the Administration's compulsory health insurance scheme, along with the kindred independence-destroying measures which are proposed.

A so-called "clinching" argument for such schemes is that poor people can't get decent medical care. That is very largely untrue—under private medicine, splendid progress has been made in providing

Cortone®

Safety in the Prolonged Control of
RHEUMATOID ARTHRITIS



Successful clinical experience with CORTONE in many *large series* of patients reveals the safety of this product in individualized dosage. One investigator notes: "We have not been impressed by the severity or frequency of side-effects . . . The side-effects due to excessive adrenal cortical hormone disappeared when the hormonal agent was discontinued."

Norcross, B. M., *N. Y. State J. Med.* **51**: 2356, Oct. 15, 1951.

CORTONE *is the registered trade-mark of Merck & Co., Inc. for its brand of cortisone. This substance was first made available to the world by Merck research and production.*

Cortone®
ACETATE
(CORTISONE Acetate Merck)

MERCK

MERCK & CO., INC.
Manufacturing Chemists
RAHWAY, NEW JERSEY
In Canada: MERCK & CO. Limited—Montreal

doctor's services and hospitalization at little or no cost to those who lack the money. All realize that still more must be done in this direction. But surely it is not necessary to destroy our magnificent medical systems—and to undermine our national fiber and character—to aid the very small percentage of our people who are indigent. Britain's sad experience should be our guide.—*Hillsboro Journal, November 15, 1951.*

Early Diagnosis of Uterine Cancer

The possibility of discovering cancer of the uterine cervix and starting treatment five to seven years before typical symptoms appear has been demonstrated in clinical studies made by Dr. Rodney B. Nelson and Dr. Albert W. Hilberg of the Public Health Service.

In examining a group of 3,224 women, average age 45.6 years, the physicians assembled data which suggested that "the majority of cervical malignancies existing in a group of female patients are present in an asymptomatic, localized form for a minimum of five to seven years before the symptoms and clinical appearance of cancer become apparent." The cytologic test and the biopsy were employed.

It was found that there was an interval of three years between the mean age of patients with cancer of the cervix which had not invaded the uterus proper and those with early infiltrative cases, and approximately seven years between preinvasive and advanced cases.

Defense Against Epidemic Disease

The nation's defenses against outbreaks of epidemic disease were strengthened recently by the establishment of an Epidemic Intelligence Service in the Public Health Service. Twenty-one physicians who have completed an intensive eight-week training course have been assigned to stations in 12 states. Dr. Harold M. Nitowsky, formerly of Denver, and Dr. J. Thomas Grayston, formerly of Chicago, have been assigned to the CDC Field Station in Kansas City.

The primary job of the service will be to render assistance in investigating disease outbreaks beyond the resources of state and local health departments to control. In time of war, if an enemy sought to employ biological warfare, the service would be invaluable.

Army Tests Drug for Malaria

Tests of a new drug, primaquine, which holds promise as a cure for malaria, are being made by the Army. Although indications are that the drug will be more effective than any now in use, further research will be necessary to determine whether it will prove as effective against the strain of malaria found in Korea.

Initial work with the drug, conducted among prisoner volunteers at the penitentiary at Joliet, Illinois, in cooperation with the University of Chicago, revealed a high percentage of cures among malaria cases with no subsequent relapses. After later tests by the Army in Nicaragua, experimental programs were established at two Army hospitals in the United States to determine the effectiveness of primaquine among returned Korean patients. Early results have been favorable, but continued observation is necessary.

If further tests are satisfactory, primaquine will augment existing drugs used in the treatment of malaria, and it may be administered routinely to all persons returning from malarious regions.

Grant for Heart Study

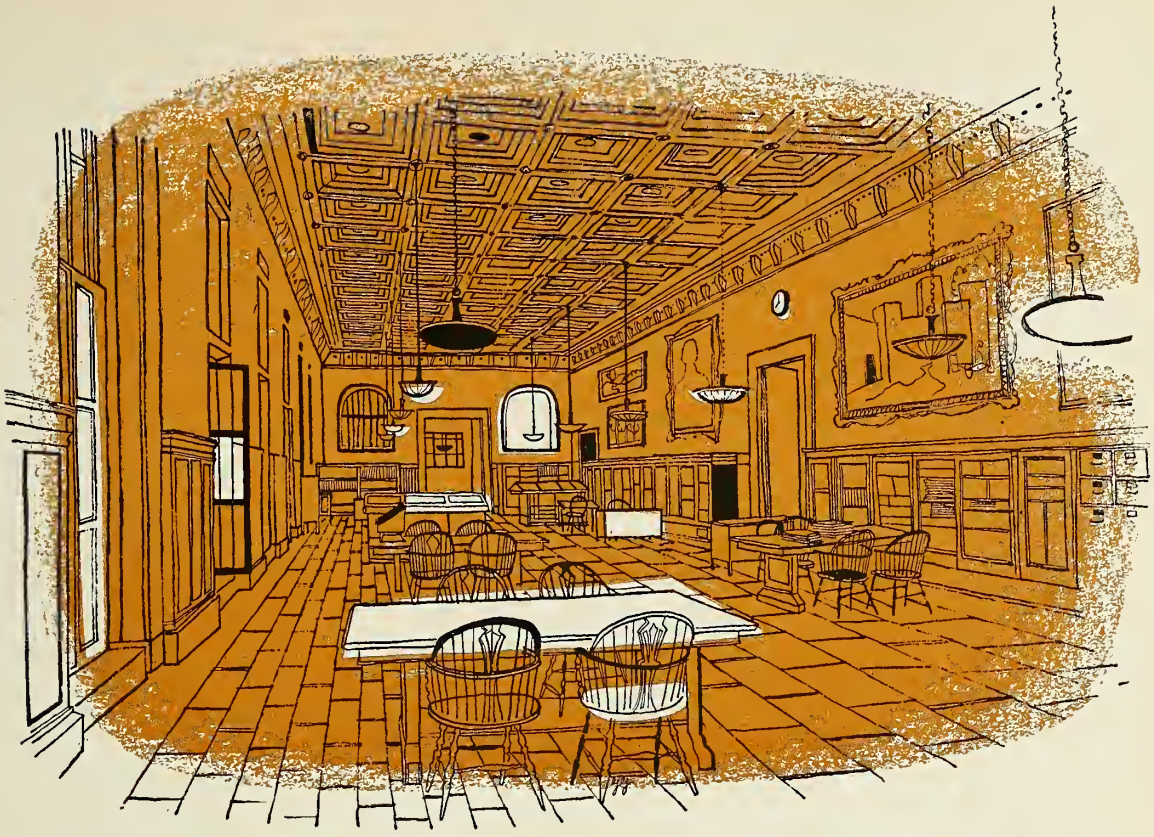
The sum of $3,000 was given to the University of Kansas Endowment Association recently by Henry J. Haskell, editor of the Kansas City Star, for research in heart disease. This is the second gift for this purpose from Mr. Haskell, who gave $10,000 in 1948.

"Now, medicine does serve the state, and, as a consequence, the state has very real claims on the profession. However, the nature, or rather, the manner of those claims must be gauged from the manner of the service. The profession serves the state by indirection; it promotes the common good indirectly, save in the case of specialized problems of a specific kind. The direct service of the profession is to the individual, to the person, and in the scheme of things still ours by lip service at least, the individual person is accounted a free man. . . .

"In a word, the art of healing serves directly and principally the person, not the state, and thus indirectly it builds up, as do all other arts, that common good which is the state's legitimate concern—a common good which the state itself destroys, however, the more it de-personalizes it, the more that good becomes 'collectivized.'

"The 'common good' is not the same as a 'collective good.' It is one thing for me to hold certain benefits in common with you. It is quite another for you and I to be the beneficiaries of a 'collective benefit' which is neither yours nor mine. . . .

"In an age of Socialism and Collectivism, such as ours tends to be, there is need, I repeat, for great vigilance if you are to keep the profession free."—Bishop John J. Wright before the Conference of Presidents and Other Officers of State Medical Associations, June 10, 1951.



From among all antibiotics, Internists often choose

AUREOMYCIN

Hydrochloride Crystalline

because

Aureomycin readily passes into the blood stream, whence it diffuses rapidly into all the tissues and fluids of the body.

Aureomycin is a broad spectrum antibiotic that has been shown to be effective in a wide variety of infections of bacterial, rickettsial and large viral origin.

Aureomycin has been reported to be effective in

Acute Amebiasis	Hepatic and Biliary Tract Infections*	Respiratory Infections*
Anthrax	Influenza	Rickettsialpox
Acute Brucellosis	Leptospirosis	Septicemia*
Chancroid	Lymphogranuloma Inguinale	Rocky Mountain Spotted Fever
Shigella Dysentery	Pericarditis*	Boutonneuse Fever
Endocarditis*	Psittacosis	Tick-Bite Fever
Erysipelas	Q Fever	Typhus
Granuloma Inguinale	Rat-Bite Fever	Tick Typhus
	Relapsing Fever	Tularemia

*When caused by Aureomycin susceptible organisms.

Throughout the world as in the United States, aureomycin is recognized as a broad spectrum antibiotic of established effectiveness.

Capsules: 50 mg.—Bottles of 25 and 100. 250 mg.—Bottles of 16 and 100.
Ophthalmic: Vials of 25 mg. with dropper; solution prepared by adding 5 cc. of distilled water.

LEDERLE LABORATORIES DIVISION AMERICAN Cyanamid COMPANY 30 Rockefeller Plaza, New York 20, N.Y.

ABSTRACTS FROM CURRENT LITERATURE

Medical Management of Hypertension

Medical Management of Hypertension. By Departments of Pharmacology and Medicine, Cornell Conference on Therapy, N. Y. St. Jnl. Med., Nov. 1, 1950.

Dr. Harry Gold presided at this conference and introduced the senior participant, Dr. William Goldring, "who has for many years pursued this subject as a clinician and investigator." Dr. Goldring made the following statement: "1. The cause of hypertension is not known. 2. There is no cure. 3. The management of the disease at present involves the use of measures that are essentially empiric. These have three objectives: 1. To reduce the level of the blood pressure; 2. to alleviate symptoms; 3. to eliminate one or another of the supposed causes.

"It is probable that no one would doubt the desirability of eliminating the cause, if the cause were known. Control of distressing symptoms is worthy of therapy. The position is not quite clear in the matter of lowering blood pressure. Arteriolar disease is the factor which ultimately brings disability and death, and to prevent or retard its development would be sound therapy, but no such measures are known! To approach this by lowering blood pressure involves an assumption concerning causal relation between high blood pressure and arteriolar disease and this is without sufficient proof. There is neither proof that lowering blood pressure decreases vascular accidents nor that persistent elevated pressure increases the incidence."

He reviewed an extensive experience with thiocyanate therapy and cited serious dangers. Blood pressure lowering was reported in one-third of the patients, but due to unpredictable dangers, he does not recommend the drug. Continuous mild sedation and reduction of body weight, sodium restriction, the rice diet, kidney extracts, foreign protein, tyrosinase, Vitamin A and other measures to reduce blood pressure are discussed and branded ineffectual. Therapy designed to alleviate distressing symptoms was labeled useful and psychotherapy is the most valuable measure. At present, hypertension is not curable except for the rare case of pheochromocytoma and the very rare instance of unilateral renal disease. Dr. Goldring admits that his attitude is pessimistic. Subsequent questions and discussions included remarks by Dr. Harold Stewart, H. E. B. Pardee, Walter Modell, Harry Gold, and guests. Rutin, Vitamin C, tetraethyl ammomin, slow and fast acting nitrites, dibenamine, bed rest, dehydration, mercurial diuretics, and special diets were discussed. The conference failed to indicate that any therapy is really dependable or without a challenge.—*P.W.M.*

* * *

Q-T Prolongation in the Electrocardiogram

Significance of Q-T Prolongation in the Electrocardiogram Based on the Study of 168 Cases. By Samuel Bellet, David Finkelstein, Am. Jnl. Med. Sci., 222:3, 263-278, Sept., 1951.

The authors working in the Philadelphia General Hospital and the Robinette Foundation of the University of Pennsylvania utilized records acquired on 168 patients. Electrocardiograms on each patient exhibited Q-T prolongations 20 per cent above the normal as calculated by Bazett's formula. Measurements were made in whichever lead the termination of T was most clearly seen and where the Q-T interval was longest. The authors thus used CR2, 3, 4 most frequently. Determination of serum electrolyte values as well as other data was available on each case. They emphasized that although the EKG is a help in raising a suspicion of the cause of the Q-T segment prolongation, the final diagnosis can be established only by the history and the clinical and chemical findings.

The cases studied were found to represent five general categories and a sixth group had to be labeled unknown etiology. Each named clinical category included several subdivisions or entities.

1. Electrolyte disturbances included three major subheads: hypocalcemia, hypopotassemia and combinations of these two.

2. Myocardial abnormalities and/or disease included hypertensive cardiovascular disease, myocarditis of several varieties and myxedema.

3. Conditions associated with myocardial anoxia included six major sub-groups.

4. Combined factors included hypoglycemia and avitaminosis.

5. Under the heading of drugs, many observers have noted that Q-T prolongation is an early sign of quinidine action and parallels rather closely the drug's effect.

6. Unknown etiology can be assumed only after it is established that the patient has not lost fluids through vomiting or diarrhea, or suffers inanition, or has received parenteral administration of fluids without oral feeding, or has received adrenocortical extracts, or has had treatment of diabetic acidosis, since each of these can be responsible for hypopotassemia. Hypocalcemia may be the result of: 1. post thyroidectomy; 2. idiopathic hypoparathyroidism; 3. uremia; 4. in association with alkalosis accompanying vomiting states. Conditions associated with myocardial anoxia in this series were myo-



prolonged anticoagulant action—yet . . .

"At no time in any of the patients was there evidence of hemorrhagic manifestations, either systemic or at the site of injection . . . and no sensitivity reaction . . . followed administration of Depo-Heparin."[1]

"Twenty patients were given Depo-Heparin as a postoperative prophylactic measure, while in six it was administered therapeutically for either thrombophlebitis or coronary thrombosis."[1] A single deep subcutaneous injection of 200 mg. of Depo-Heparin "resulted in effective anticoagulant action," achieving "a satisfactory elevation of the clotting time for a period of twenty-one hours for the average patient response."[1] The necessary coagulation time determinations were routinely performed during therapy.

℞ Depo*-Heparin SODIUM

Each cc. contains:

Heparin Sodium	20,000 U.S.P. units (Approx. 200 mg.)
Gelatin	180 mg.
Dextrose, Anhydrous	80 mg.
Water for Injection	q. s.

Preserved with sodium ethyl mercuri thiosalicylate 1:10,000

Supplied with disposable 1 cc. cartridge syringe.

1. Moss, Henry N., and D'Alessandro, Domenic R.: The intensity and duration of the effect of Depo-Heparin on venous coagulation time in man. Am. Practitioner & Dig. of Treatment 2:309 (April) 1951

*Trademark, Reg. U. S. Pat. Off.

n product of

Upjohn

Research for Medicine . . . Produced with care . . . Designed for health

THE UPJOHN COMPANY, KALAMAZOO, MICHIGAN

cardial infarction, arteriosclerotic heart disease, pulmonary infarction, emergence from Adams Stokes attack, gas poisoning, and the dying heart.

The article merits study and is timely since recently Q-T prolongation has been mentioned principally in rheumatic carditis and its other causes deserve emphasis.

* * *

Prolonged Cardiac Arrest

Recovery from Prolonged Cardiac Arrest. By Harry S. Ivory and Harvey Rinzler, Am. Jnl. Surg., 82:2, 256-259, Aug., 1951.

The authors briefly review the history of treatment for cardiac arrest and favor the transthoracic approach for cardiac massage. They feel that intermittent compression of the heart by the surgeon's hand introduced through the abdomen and pressing upward against the intact diaphragm is also valuable and less apt to produce ventricular fibrillation.

They report a case of cardiac arrest in a 25-year-old white female undergoing pelvic laparotomy for a right ovarian cyst. Some delay was occasioned by ineffectual use of intra-cardiac stimulants. Transthoracic cardiac massage was started 11 minutes after cardiac arrest. Five minutes later spontaneous heart contractions appeared, and in another five minutes spontaneous respiration began, replacing the artificial respiration that had been employed.

During the next four days the patient was treated for cardiac decompensation, shock, postoperative abdominal distention, and respiratory distress. She remained comatose for these four days, and then began to respond. Numerous neurological changes were noted, most of which improved gradually over the next several weeks.

Her cerebral recovery was slow, and 22 days after the operation glutamic acid, five grams daily, was started and the patient appeared to show prompt improvement in motor coordination. Speech returned, haltingly, after the 27th day. Fifty-two days after surgery she went home with essentially negative neurological findings, except for persistent tremor of the hands.

The authors feel that glutamic acid aided mental and physical recovery.—*T.P.B.*

A new fourth edition of Standard Nomenclature of Diseases and Operations has been published by the Blakiston Company, Philadelphia, and is being made available to hospitals this month through the American Medical Association. Work on the new edition was started three years ago. More than 70 per cent of hospitals in this country have adopted the standard plan for diagnostic coding of hospital records.

AMERICAN BOARD EXAMINATIONS

Anesthesiology. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15, Conn. Various locations, July 18.

Dermatology and Syphilology. Sec., Dr. George M. Lewis, 66 East 66th St., New York 21. Written, Chicago, March 1952. Oral, Chicago, May, 1952.

Internal Medicine. Sec., Dr. William A. Werrell, 1 West Main Street, Madison 3.

Obstetrics and Gynecology. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6. Oral, Chicago, June 7-13, 1952. Final date for filing, Feb. 1, 1952.

Ophthalmology. Sec. Dr. Ewin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine. Written, Feb. 4-5, 1952, 25 centers. Oral, Oct. 8-15, Chicago.

Otolaryngology. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City. Oral, Chicago, Oct. 8-12.

Pathology. Sec., Dr. Robert A. Moore, 1402 S. Grand Blvd., St. Louis.

Pediatrics. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa. Written, under local monitors, Jan. 11. Oral, various locations.

Physical Medicine and Rehabilitation. Sec., Dr. Robert L. Bennett, 30 N. Michigan Ave., Chicago. Parts I and II, Chicago, June 9-10.

Plastic Surgery. Office of the Board, 4647 Pershing Ave., St. Louis 8.

Preventive Medicine and Public Health. Sec. Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore.

Proctology. Sec., Dr. Louis A. Buie, 102-110 Second Ave., S.W., Rochester, Minn.

Psychiatry and Neurology. Sec., Dr. David A. Boyd, Jr., 102-110 Second Ave., S.W., Rochester, Minn.

Radiology. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

Surgery. Sec., Dr. J. Stewart Rodman, 225 South 15th St., Philadelphia. Written, various centers, March, 1952.

Thoractic Surgery. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit.

Urology. Sec., Dr. Harry Culver, 30 Westwood Road, Minneapolis 16. Chicago, Feb. 9-13, 1952.

Medical and Surgical Supplies for Doctors of Medicine and Hospitals.

Munns Medical Supply Co.
512 Kansas Ave.
Topeka, Kansas

CLASSIFIED ADVERTISEMENTS

WANTED—X-ray and laboratory technician. Prefer woman who can do both. Write the Journal 11-51 for conference.

FOR SALE—Well equipped office in central Kansas town of 12,000. Write the Journal 12-51.

WANTED—16" x 24" gas or electric autoclave, with or without instrument and water sterilization attachments. Write the Journal 13-51.

FOR SALE OR TRADE—Will sacrifice direct tracing electrocardiograph in perfect condition, Cardiotron, Model PC 1A, portable, walnut case, not a scratch on it. Standard leads. Reason for disposing: doing mostly eye work and have access to EKG services. Write the Journal 14-51.

WANTED—Doctor, young or old, general practice. Write the Journal 1-52.

TROWBRIDGE TRAINING SCHOOL

Established 1917

For unusual children. Medical and psychiatric supervision. Experienced teachers. Individual special training. Home atmosphere. Enrollment limited. Approved and registered by the Council of Medical Education and Hospitals of the A.M.A. Pamphlet.

E. H. TROWBRIDGE, SR., M.D.

1905 BRYANT BUILDING KANSAS CITY 6, MO.

AMERICA'S AUTHENTIC HEALTH MAGAZINE

today's health

AMERICAN MEDICAL ASSOCIATION



BUILDS FAITH IN YOU AND YOUR WORK

IN YOUR WAITING ROOM

3 YEARS $6.50 2 YEARS $5.00

1 YEAR $3.00

ANNUAL CLINICAL CONFERENCE

CHICAGO MEDICAL SOCIETY

March 4, 5, 6, 7, 1952 — — — — — — — — — — — — Palmer House, Chicago

Special Feature of the 1952 Conference — DAILY TEACHING DEMONSTRATIONS

Thirty-four outstanding teachers and speakers will present half-hour lectures on subjects of interest to both general practitioner and specialist.

FOUR PANELS ON TIMELY TOPICS

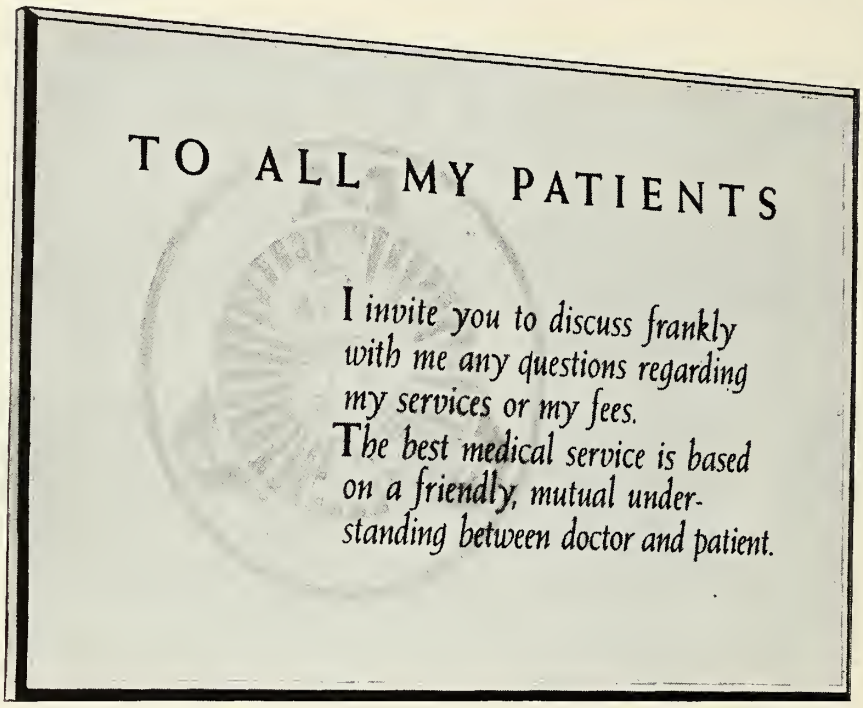
Scientific Exhibits worthy of real study and helpful and time-saving technical exhibits.

The CHICAGO MEDICAL SOCIETY ANNUAL CLINICAL CONFERENCE should be a MUST on the calendar of every physician. Plan now to attend and make your reservation at the Palmer House.

announcing

A NEW PUBLIC RELATIONS AID

. . . to boost your PR rating



NEW OFFICE PLAQUE

- ✓ **dark brown lettering on buff**
- ✓ **harmonizes with any office decor**
- ✓ **measures 11½ by 7¾ inches**
- ✓ **for desk or wall**
- ✓ **laminated plastic finish**

As you know, a physician's best public relations is carried on right in his own office. Here the physician gets acquainted with his patients . . . gives them a chance to talk over problems . . . builds a feeling of mutual understanding between patient and doctor.

Your American Medical Association has designed an attractive new office plaque to be displayed prominently on an office desk or wall. This is a graphic invitation to patients to talk over professional services and fees. Patients like to ask questions, but often are hesitant to do so. This plaque will open the door to better relations with your patients. Order one today.

PRICE
$1
POSTPAID

Order Department
AMERICAN MEDICAL ASSOCIATION
535 North Dearborn Street
Chicago 10, Illinois

THE
MEDICAL PROTECTIVE
COMPANY
FORT WAYNE, INDIANA

PROFESSIONAL PROTECTION
EXCLUSIVELY
SINCE 1899

specialized service
assures *"know-how"*

TOPEKA Office:
J. E. McCurdy, Rep.,
1035 Randolph Avenue,
Telephone 2-3027

ACCIDENT • HOSPITAL • SICKNESS
INSURANCE
FOR PHYSICIANS, SURGEONS, DENTISTS
EXCLUSIVELY

ALL PREMIUMS COME FROM — PHYSICIANS SURGEONS DENTISTS — ALL CLAIMS GO TO

$5,000 accidental death	$8.00
$25.00 weekly indemnity, accident and sickness	Quarterly
$10,000.00 accidental death	$16.00
$50.00 weekly indemnity, accident and sickness	Quarterly
$15,000.00 accidental death	$24.00
$75.00 weekly indemnity, accident and sickness	Quarterly
$20,000.00 accidental death	$32.00
$100.00 weekly indemnity, accident and sickness	Quarterly

COST HAS NEVER EXCEEDED AMOUNTS SHOWN.
ALSO HOSPITAL POLICIES FOR MEMBERS' WIVES AND CHILDREN AT SMALL ADDITIONAL COST

85c out of each $1.00 gross income used for members' benefits

$4,000,000.00 Invested Assets — $17,000,000.00 Paid for Claims

$200,000.00 deposited with State of Nebraska for protection of our members

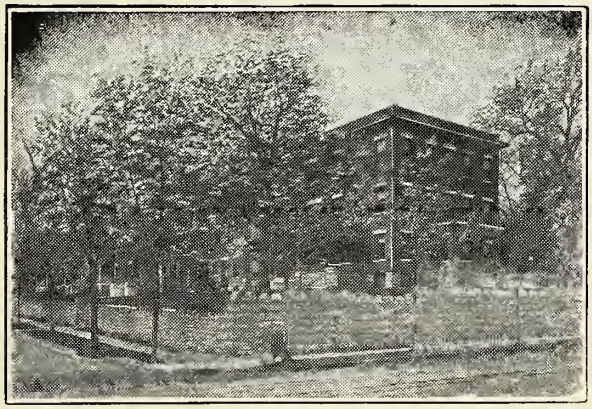
Disability need not be incurred in line of duty—benefits from the beginning day of disability

PHYSICIANS CASUALTY ASSOCIATION
PHYSICIANS HEALTH ASSOCIATION
49 years under the same management
400 FIRST NATIONAL BANK BLDG., OMAHA 2, NEBRASKA

THE MAJOR CLINIC ASSOCIATION

3100 EUCLID AVENUE — KANSAS CITY, MISSOURI

A Well Equipped Institution for the Nervous and Mental Diseases and Alcohol Drug and Tobacco Addictions



Beautiful Location Large, Well Shaded Grounds Spacious Porches, All Modern Methods for Restoring Patients to a Normal Condition

Elderly People Accepted — Special Rates

HERMON S. MAJOR. M.D.
Medical Director

HERMON S. MAJOR. JR.
Business Manager

THE LATTIMORE-FINK LABORATORIES

Topeka El Dorado
Kansas

J. L. Lattimore, M.D., Director
A. A. Fink, M.D., Pathologist
H. C. Ebendorf, M.T. Serologist
A. C. Keith, B.S., Chemist
L. W. Hull, A.B., Bacteriologist
Walter Norris, A.B., Chemist

Anatomical and Clinical Pathology

Containers Furnished Upon Request

Cook County Graduate School of Medicine

ANNOUNCES CONTINUOUS COURSES

SURGERY—Intensive Course in Surgical Technic, Two Weeks, starting January 21, February 4, February 18.
Surgical Technic, Surgical Anatomy and Clinical Surgery, Four Weeks, starting March 3, June 2.
Surgical Anatomy and Clinical Surgery, Two Weeks, starting March 17, June 16.
Surgery of Colon and Rectum, One Week, starting March 3, April 7.
Gallbladder Surgery, Ten Hours, starting April 21.
Basic Principles in General Surgery, Two Weeks, starting March 31.
Esophageal Surgery, One Week, starting June 23.
Breast and Thyroid Surgery, One Week, starting June 23.
Thoracic Surgery, One Week, starting June 2.
Fractures and Traumatic Surgery, Two Weeks, starting February 4.

GYNECOLOGY—Intensive Course, Two Weeks, starting February 18, March 17.
Vaginal Approach to Pelvic Surgery, One Week, starting March 3, March 31.

OBSTETRICS — Intensive Course, Two Weeks, starting May 5.
Electrocardiography and Heart Disease, Two Weeks, starting March 17.
Gastroenterology, Two Weeks, starting May 19.
Hematology, One Week, starting June 16.

UROLOGY—Intensive Course, Two Weeks, starting April 28.
Ten Day Practical Course in Cystoscopy, starting January 21, February 18 and every two weeks.

ROENTGENOLOGY — Two Week Lectures and Clinical Courses each month.

GENERAL, INTENSIVE AND SPECIAL COURSES IN ALL BRANCHES OF MEDICINE, SURGERY AND THE SPECIALTIES
TEACHING FACULTY—ATTENDING STAFF OF COOK COUNTY HOSPITAL
Address: Registrar, 427 S. Honore St., Chicago 12, Ill.

Index to Advertisers

Abbott Laboratories 29
American Meat Institute..... 31
Ayerst, McKenna and Harrison, Ltd..... VIII
Brown School XIV
Chicago Medical School..... 41
Continental Casualty Company..... XI
Cook County Graduate School of Medicine..... 44
Duncan Laboratories XII
Florida Citrus Commission V
Goetze Niemer Company..... XVIII
Hanicke, P. W., Manufacturing Company XIV
Kansas Oxygen Division..... XVI
Lattimore-Fink Laboratories 44
Lederle Laboratories, Inc..... 37
Lilly, Eli, and Company..... Facing XVIII
Major Clinic 43
Mead Johnson and Company..... Back cover
Medical Protective Company..... 43
Merck and Company, Inc..... 35
Munns Medical Supply Company, Inc..... 40
Neurological Hospital Association XVIII
Parke, Davis and Company. Inside front cover and III
Pfizer, Charles and Company..... IX and 33
Philip Morris and Company..... VII
Physicians Casualty Association..... 43
Producers Creamery Company..... XIV
Ralph Sanitarium XV
Reynolds, R. J., Tobacco Company..... X
Schering Corporation Inside back cover
Searle, G. D., and Company..... 25
Southwest Scientific Corporation..... XVIII
Squibb, E. R., and Sons 27
Trowbridge Training School 41
University of Kansas Medical Center..... XVIII
Upjohn Company 39
Winthrop-Stearns, Inc. XIII
Woodcroft Hospital XVI
Wyeth, Inc. XVII

Motion Picture List Revised

A list of "Sources of Motion Pictures on Health" has been revised and is now being issued by the Committee on Medical Motion Pictures of the American Medical Association, 535 North Dearborn Street, Chicago. The list includes nine pages of addresses of the major loan and rental libraries, the state health departments' film libraries and references to printed lists and catalogues.

THE JOURNAL
of the
KANSAS MEDICAL SOCIETY
Owned and Published by The Kansas Medical Society

Volume LIII FEBRUARY, 1952 No. 2

X-ray Pelvimetry in Private Practice*

N. C. Siebert, M.D., and Charles M. White, M.D.**
Wichita, Kansas

X-ray pelvimetry has both staunch advocates and bitter critics. Some centers use it in 100 per cent of their cases and others in only one per cent.[1] If the knowledge of the internal measurements of the pelvis can be of help in the management of any particular case, then it would seem logical that x-ray pelvimetry would be indicated. Accurate measurements can be obtained by a number of different x-ray methods.

At the outset let us emphasize that measurements alone do not constitute a complete pelvimetry. A study of the pelvic type and the fetal-pelvic relationship is much more important than the measurements alone.[2] Pelvimetry is a laboratory aid to the obstetrician. Eutocia may occur in the face of a grave pelvimetric prognosis and dystocia may occur in a patient with a normal pelvimetry. Pelvimetry properly used in conjunction with a complete clinical evaluation of the patient gives the obstetrician more information so that he can better choose the type of delivery which will insure a lower morbidity and mortality for both mother and infant. If such a situation is to be obtained it is obvious that there must be complete and close cooperation between the obstetrician and roentgenologist.

With these thoughts in mind we undertook this study in an effort to determine what value x-ray pelvimetry is as we use it in private obstetrical practice. We have used pelvimetry somewhat sparingly following definite indications (See Table I). We were particularly interested in making a comparison between the prognosticated course of events by pelvimetry with the character of the actual labor and delivery. Such a study would also help us determine the factors of greatest help in arriving at a reasonably accurate prognosis of the character of the labor and delivery which will ensue.

Perhaps the most commonly used methods of pelvimetry are the position-frame methods, the stereoscopic method, and the geometric or triangulation methods. All methods have their advantages and disadvantages. Accurate measurements can be obtained by any of them if meticulous care is used. Numerous studies have shown that accuracy of prognosis depends not on the method used but on the familiarity of both obstetrician and roentgenologist with the method.

We have used the method described by Ball and his co-workers. It has appealed to us because it offers an opportunity to observe the pelvis in two planes and also to compute the volume of the fetal cranium. Another advantage is that the films can be made in the erect position, which tends to immobilize the fetal head and also adds greatly to the information obtained from the lateral view. We prefer to do the pelvimetry within two weeks of term for more accurate study of the fetus. The number of films made in any pelvimetry must receive some consideration.

TABLE I

INDICATIONS FOR PELVIMETRY

Indications	Number of Patients	Per cent Indications
Unengaged Head in a Primipara at Term	25	45.9
Small Outlet	7	12.1
Large Baby	7	12.1
Patient's Request	5	9.0
Previous Stillborn	3	5.4
Previous Section	2	3.6
Contracted Pelvis	2	3.6
Pelvic Fracture	2	3.6
Breech	1	1.8
Previous Spastic Infant	1	1.8
Postmaturity	1	1.8

*From the Department of Obstetrics and Gynecology and the Department of Radiology, the Wichita Clinic.

**We wish to express appreciation to R. A. West, M.D., for helpful advice and permission to include some of his cases in this study.

Studies from the Brookhaven National Laboratory[3] reveal that one anteroposterior exposure gives an approximate dose of 3.6 roentgens while a single lateral exposure gives an approximate dose of 9.0 roentgens. It must be remembered that for the fetus this is total body irradiation. In using total body irradiation for therapy of leukemia, for example, the usual dose is 15-25 r for one treatment. There is no clinical evidence of damage to the near term fetus from pelvimetry, yet we feel that no unnecessary exposures should be made.

Beyond measurements the following information should be obtained from the x-ray films: fetal abnormalities, fetal size, presentation, attitude and position, presence or absence of engagement, pelvic type, depth of sacral curve, and size of sciatic notch.

The indications for x-ray pelvimetry vary somewhat in different clinics. There are those who advocate x-ray pelvimetry in all primipara and in multipara who have previously had difficult deliveries or stillborn babies. In other clinics, the indications are not so inclusive and are limited to some of the following: (1) Patients with suspected disproportion, (2) Patients with contracted or questionably contracted pelves, (3) Patients with history of pelvic injury, (4) Patients with pelvic, spinal or other deformities, (5) All primipara and some multipara with abnormal presentations, (6) Elderly primipara, (7) Primipara at or near term with unengaged fetal heads, (8) Primipara with a diagonal conjugate of less than 11.5 cm., (9) Primipara with suspected midplane narrowing, (10) Primipara with bituberous diameter of 8 cm. or less, (11) Large baby and (12) Postmaturity.

Table No. I lists the indications we have followed and the number of patients occuring in each. It will be noted that the patients enumerated will total more than our series of 50 cases. This is due to the fact that a number of patients had more than one indication.

For this study we have selected 50 consecutive pelvimetries done on patients, all of whom have been delivered by the men in our department of obstetrics. A brief study of Table I listing the indications for which pelvimetry was obtained will reveal that this series is a selected group in which one would clinically expect a high percentage of dystocia. Two patients had had previous Cesarian section done elsewhere, making it difficult to avoid a repeat section.

Various pelvimetric criteria have been used to predict more accurately the outcome of labor. Among them are: (1) The obstetrical conjugate, (2) Mengert's areas,[4] (3) Allen's areas,[5] (4) Moir's approach,[6] and (5) Weinberg and Scadron's sums.[7]

An obstetrical conjugate of 10.0 cm. is considered to be borderline.

Mengert's areas are obtained for the inlet by multiplying the obstetrical conjugate and the transverse diameter. One hundred per cent of normal is 145 sq. cm. Eighty-five per cent of normal (approximately 125 sq. cm.) is considered to be borderline. For the midplane Mengert obtains his areas by multiplying the anteroposterior diameter by the transverse diameter. The established normal product is 125 sq. cm. Eighty-five per cent of normal (approximately 105 sq. cm.) is considered to be borderline.

Weinberg and Scadron's sum for the inlet is obtained by adding the obstetrical conjugate and the transverse diameter with the borderline sum being 22 cm. To determine midplane capacity they add the transverse diameter and the posterior sagittal diameter with dystocia probable when the sum is less than 14 cm.

Allen's areas are determined by the use of formulae for an ellipse applied to pelvic diameters and Moir uses a graph to correlate antenatal fetal head measurements with the obstetrical conjugate and the average or available transverse diameter to predict disproportion.

The size of the fetal head, position, attitude and the amount of molding which will occur are of importance in attempting to make a prognosis. Ball's[8] method of pelvimetry measures the volume of the fetal head and the volume capacity of the smallest internal pelvic diameter. Scarpellino[9] states that the difficulty, duration of labor and operative assistance increases as the disproportion between the fetal head and the smallest plane of the pelvis approaches 200 cc. in the anterior and 135 cc. in the posterior rotation.

Moldability of the fetal head is not predictable. Dyer[10] found that in normal pelves vaginal delivery was the rule until cephalopelvic disproportion exceeded -200 cc., whereas vaginal delivery was limited in contracted pelves if the disproportion exceeded -50 cc. His explanation is that a fetal head of 850 cc. can mold 200 cc., or approximately 23.5 per cent, to pass through a 650 cc. pelvis while in order for a 500 cc. head to pass through a pelvis of 300 cc. it would have to mold 200 cc. This would represent molding of 40 per cent, which is usually not possible without fetal damage. He suggests a safe index of molding to be not greater than 25 per cent of the fetal skull volume.

As we pointed out earlier, the x-ray prognosis of labor should rest not only on measurements or volume difference but also on the morphologic pelvic type, presence or absence of engagement, sacral curve, and the fetal position and attitude.

We have set up the following arbitrary classification of prognoses, useful not only from the standpoint of making this study but also in order to give the

obstetrician a clear prognosis with less chance of misunderstanding.

1. Uneventful delivery expected.

2. Difficulty expected, but do not expect damage to mother or baby.

3. Difficult delivery with possible damage to mother or baby expected.

4. Impossible delivery with damage to mother or baby expected.

The deliveries have been classified for our statistical purposes into three groups as follows:

Uneventful—28 cases—56 per cent

Difficult—11 cases—22 per cent

Section—11 cases—22 per cent

The percentage of difficult labors and sections is high because stringent indications were used in the selection of the cases for pelvimetry. Our section incidence during the period covered by this study was 4.88 per cent.

Prognoses were made on the 50 pelvimetry cases as shown in Table II. The number of deliveries of each type is also indicated in the table. When a pelvimetry prognosis of an uneventful delivery (prognosis 1) was given, we were correct in 82 per cent of the cases. When we made a prognosis of difficult labor without damage expected (prognosis 2), there were 45 per cent uneventful deliveries whereas 55 per cent of the cases were difficult or required section. When we made a prognosis of difficult labor with probable damage (prognosis 3), there were no uneventful deliveries, all being difficult or requiring section. It is interesting that these figures correspond closely with results obtained by Moir[11] at the University of Oxford using a different method of pelvimetry. It should be mentioned that in this series of 50 cases there were no fetal deaths and no fetal damage.

TABLE II

PROGNOSES

GROUP	DELIVERY	CASES	%
I	Uneventful	19	82.6
23 Cases	Difficult	3	13
	Section	1	4.3
II	Uneventful	9	45
20 Cases	Difficult	6	30
	Section	5	25
III	Uneventful	0	0
7 Cases	Difficult	2	28.5
	Section	5	71.5
IV	Uneventful	0	0
0 Cases	Difficult	0	0
	Section	0	0

We have made an attempt to determine the value which certain x-ray findings have in arriving at an accurate prognosis. We have been particularly interested in the presence or absence of engagement near term, the morphological pelvic type and the cephalo-pelvic volume difference determined by the method of Ball.[8]

We think that the films should be made in the erect position in order to use the presence or absence of engagement as a helpful finding. Examination of the patient supine may indicate that engagement has not yet occurred while immediate x-ray examination with the patient erect will reveal the presence of engagement.

Table III reveals that the presence or absence of engagement as seen in the erect lateral film is a very helpful prognostic finding. When the head is engaged there is an 81 per cent chance that there will be an uneventful labor, but when it is unengaged there is a 74 per cent chance that the delivery will be difficult or section required.

TABLE III

	DELIVERY TYPE	CASES	%
Engaged 27 Cases	Uneventful	22	81.4
	Difficult	3	11.1
	Section	1	7.5
Unengaged 23 Cases	Uneventful	6	26
	Difficult	7	30.4
	Section	10	43.6

To study the effect of the morphologic pelvic types on the labor and delivery we grouped the pelves studied (See Table IV) according to the classification of Caldwell and Moloy.[12] Their five pelvic types are as follows:

TABLE IV

PELVIS	NUMBER of PATIENTS	%
Gynecoid	17	34.0
Android	21	42.0
Anthropoid	1	2.0
Platypelloid	11	22.0

1. Gynecoid—round, normal, female; transverse diameter equal to or slightly greater than (not more than one cm.) the anteroposterior diameter of the inlet.

2. Android—wedge or blunt shaped, male, transverse diameter is more than one cm. and less than three cm. greater than the anteroposterior diameter of the inlet.

3. Anthropoid—long, narrow, oval, transverse di-

ameter less than anteroposterior diameter of the inlet.

4. Platypelloid—flat, transverse oval, transverse diameter is three cm. or more greater than the anteroposterior diameter of the inlet.

5. Asymmetrical.

We feel that the percentage of the various types of pelves in our series is due to the fact that our patients are a selected group with definite indications for pelvimetry and thus do not reflect the percentage of types of pelves seen in the general female population.

As indicated in Table V our patients with gynecoid pelves had a 71 per cent chance of having an uneventful delivery while those with the android and platypelloid pelves had a 53 per cent chance of having either a difficult delivery or requiring a section. It is interesting to note that the percentage of the types of deliveries occurring in the android and platypelloid pelves are very similar.

TYPE V

Pelvic Type	*Delivery*	*Case*	*%*
Gynecoid	Uneventful	12	70.5
Total Cases—17	Difficult	2	11.7
Percentage—34%	Section	3	17.7
Android	Uneventful	10	47.6
Total Cases—21	Difficult	6	28.5
Percentage—42%	Section	5	23.3
Anthropoid	Uneventful	1	100
Total Cases— 1	Difficult	0	
Percentage— 2%	Section	0	
Platypelloid	Uneventful	5	45.4
Total Cases—11	Difficult	3	27.2
Percentage—22%	Section	3	27.2

The difference between the volume of the fetal head and the volume capacity of the smallest plane of the pelvis does not give a figure from which an arbitrary prognosis can be made. Factors influencing this which cannot be mathematically assessed are the moldability of the fetal head and the possible availability of compensating space in the opposite diameter of the pelvis.

The volume differences in our series of cases are listed in Table VI.

The correlation between the volume difference and the type of delivery which occurred is not close. There is a definite preponderance of cases with uneventful deliveries, however, when the volume difference is less than 100 cc. There is also a preponderance of cases with operative deliveries when the volume difference is greater than 150 cc. Once again this is evidence that mathematical figures are not the sine qua non of pelvimetry. All available factors must be considered and a prognosis rendered on a sound judgment of all of them.

TABLE VI

	Vol. Diff. In. C.C.	*Cases*	*%*
Uneventful Deliveries 28 Cases	0 - 50	19	67.8
	50 - 100	2	7.1
	100 - 150	6	21.4
	150 - 200	1	3.5
	200 - 250	0	0
	250 - 300	0	0
Difficult Deliveries and Sections 21 Cases (One breech not included)	0 - 50	5	23.8
	50 - 100	1	4.7
	100 - 150	7	33.3
	150 - 200	7	33.3
	200 - 250	0	0
	250 - 300	1	4.7

Conclusions

1. X-ray pelvimetry is not needed routinely in private practice. Definite indications should be followed.

2. Pelvimetry is of definite help to us. When an uneventful delivery was predicted it was correct 82 per cent of the time, and when a difficult delivery was predicted it was correct 67 per cent of the time.

3. Pelvimetric measurements alone are not sufficient for making a prognosis. Other factors such as engagement, pelvic type, sacral curve, and fetal size, attitude, presentation and position must be considered.

4. Close collaboration between the obstetrician and roentgenologist is essential for pelvimetry to be useful.

5. A simple prognostic classification helpful to both obstetrician and roentgenologist has been presented.

Bibliography

1. Jones, O. Hunter, Am. J. Obstet. and Gynec., 54: 776, 1947.
2. Swenson, Paul C., Med. Clin. of N. A., Nov. 1948, 1659.
3. Handloser, John S., and Love, Robert A., Radiology, 57: 252, 1951.
4. Mengert, W. F., J.A.M.A., 138: 169, 1948.
5. Allen, E. P., Brit. J. Radiol., 20: 230, 1947.
6. Moir, J. C., J. Obst. and Gynaec. Brit. Emp., 54: 20, 1947.
7. Weinberg, A., and Scadron, S. J., Am. J. Obstet. and Gynec., 52: 255, 1946.
8. Ball, R. P., and Golden, R., Am. J. of Roent. and Rad. Th., 49: 731, 1943.
9. Scarpellino, Louis A., Radiology, 48: 45, 1947.
10. Dyer, Isadore, Am. J. Obstet. and Gynec., 60: 302, 1950.
11. Moir, J. C., Brit. Med. J., Dec. 24, 1949, 1437.
12. Caldwell, W. E., and Moloy, H. C., Am. J. Obstet. and Gynec., 26: 479, 1933.

The Field of Allergy*

Ethan Allan Brown, M.D.

Boston, Massachusetts

A reliable index of the quality of medicine practiced in any community is the amount of allergy discovered and treated. Every good allergist has had the experience of having a physician send him a patient from a geographical section of the surrounding community from which no other patient has ever been referred. Successful treatment invariably causes an influx, sometimes of dozens of patients, whose allergy had been previously unsuspected, undiagnosed, untreated, or occasionally, mistreated. When the cause of the symptoms of these new patients has been successfully diagnosed and the condition cleared, allergy finds its proper place among the medical problems of the community. Since the general practitioner is never quite certain as to which of the conditions he treats may be mediated by allergic causes, he must, in the present state of the development of the field of allergy, become allergy-conscious.

In what parts of medicine will a knowledge of allergy, or the assistance of an allergist, be necessary? At this point, we can say that there are at least seven distinct groups of allergic phenomena. Many classifications of these have been published, but none is completely satisfactory, since a condition may, on one occasion, be listed according to its morphological characteristics, as hives, and on another, by its etiology, as hay fever; and then again by the organ involved, as in allergic tracheitis. Nevertheless, a clear picture of the types of allergy can be drawn so that each may be easily recognized.

There is, at present, no completely satisfying definition of allergy. Immunological terms are too abstract for everyday purposes. Common sense definitions will necessarily omit references to complex (and often, hypothetical) immunological processes. What is understood, however, is that the allergic patient responds abnormally, but in a specific manner, to substances which cause no response, or rather no harmful response, in normal individuals. Such reactions must be smooth muscle spasm, mucous membrane edema, and urticae, or hives of the skin or any tissue surface. We can go beyond this and say that such reactions, as in anaphylactoid shock, may seem to affect the patient as a whole, or that they may be limited to one or more tissues or shock organs, as for instance, the skin or the upper or lower respiratory tracts.

The first and basic form of allergy is probably anaphylaxis. In the older textbooks, anaphylaxis and allergy are described as differing conditions; the first seen in animals, and the second, in man. If the word allergy is used as an all-inclusive and general term, anaphylaxis can, of course, be accepted as a form of allergy. This is especially true since allergy (as pollen sensitivity) has been seen in animals, and secondly, since anaphylactic shock in human beings resembles, and in many ways is probably identical with, anaphylaxis in animals. It should be recalled, however briefly, that in anaphylaxis the sensitivity is artificially induced by the injection of a "foreign protein." After the incubation period, a second injection of the same material causes anaphylactic shock, the organ response depending upon the species of animal used for the experiment. If the animal is not killed by the second injection, it is, for a variable period of time, refractory to further shock. If small injections of the same material are given during the incubation period, the onset of sensitivity may be delayed, or else the animal may not become sensitized, and it is difficult, if not impossible, to shock it.

In summary: An animal may be sensitized and left alone (remaining sensitive), living out its normal life span in the sensitized state; it may be sensitized and shocked so that it may live, and for some time be refractory to further shock; it may be killed by the anaphylactic reaction or it may be desensitized.

It is not generally realized that the procedures necessary for sensitizing, desensitizing, shocking to kill, and shocking to make refractory, differ only in the amounts used and the time interval between exposures. These are the fundamental facts which enable us to treat certain types of allergy in human beings by injection therapy.

The second group of allergic conditions is termed "atopic." The term is useful although it is no longer considered exact. This class includes the patients usually considered as clinically allergic, namely, those who suffer from hay fever. A good number of patients with bronchial asthma are atopic, some with eczema, and occasional cases of patients with urticaria and migraine.

From a general point of view, the typical patient of the atopic group usually has a strong family history of allergy, or similar types of atopy, and consistently presents more than one allergic manifestation. Whatever the shock organ, the symptoms are usually explicable as being due to increased capillary

*Presented at the 92nd annual session of the Kansas Medical Society, Topeka, Kansas, May 15, 1951.

permeability, occasionally associated with smooth muscle spasm. Locally, the affected tissues and secretions, or generally, the blood, present an eosinophilia. The blood also contains "passive transfer antibodies," their presence being responsible for the positive scratch, pressure puncture, or intradermal tests, which mark sensitivity as opposed to immunity, since a desensitized patient may, nevertheless, present positive skin tests. Such positive skin tests are therefore only indicative of immunity in a previously untreated patient.

From the immunological point of view, atopic phenomena become manifest when the sensitized tissue of the patient with an atopic constitution meets an atopen by inhalation, ingestion, injection, or direct contact, provided it reaches the specifically sensitized tissue in sufficient quantities per unit of time. Such atopens may be inhalants, as pollens, moulds, smuts, rusts, animal danders, cosmetics, insecticides, insect scales, impalpable dusts, powders and the degeneration products of clothes and furnishings derived from protein sources. The injected substances may be extracts, sera, vaccines, drugs, and foreign proteins. Ingested substances are usually foods or drugs. Contactants, as silk, may, in marked sensitivity, act transepidermally.

These substances eliciting sensitivity reactions are too numerous to be listed, but can be classified as water soluble and protein-derived, from animal, plant, insect, mould, bacterial or chemical sources. Fortunately, for our patients, fewer than 100 of the known 2,000 allergens are responsible for about 90 per cent of the symptoms of the patients suffering from this type of allergy.

In the early stages of some of the conditions known to be atopic, the patient's lesions are reversible. When, in time, they become irreversible, the discovery of the original allergens helps us little in their present treatment. In some patients, a nonallergic component may easily and completely overshadow any allergy that may be present. These are the patients who must be chosen with care, if they are to have allergy studies.

Unless they are carefully selected, according to some common sense criteria, the diagnostic procedures may well be a waste of time and money, as for instance in a senile dust-sensitive, asthmatic patient, who has developed emphysema and chronic bronchitis and a cor pulmonalae. The most complete dust elimination possible will not relieve the patient's wheezing, although exposure to massive quantities of house dust may cause an immediate exacerbation. It should be noted at this point that, for many patients, there is no better or more satisfactory common-sense test than that available to every physician at all times; the exacerbation upon exposure to the causative allergen and the remission following its elimination, excepting when such sensitivities are multiple.

Since these are the patients in whom skin tests are done, the subject of skin testing must be given brief mention. Such tests may be negative when the patient's skin is in a refractory condition. They may not be positive in patients with certain types of food allergy, in whom other diagnostic measures must be used. Negative skin tests, in the presence of positive knowledge that inhalants cause symptoms, may be due, among other things, to the fact that the sensitivity is mild and the testing solution weak. Tests can be only as adequate as are the testing solutions. It may be that the sensitivity is of the type which does not give positive skin tests. Skin testing has long been elevated from the state in which it consisted of a wooden box containing several hundred dusty vials, with broken corks, handled by an uninterested, inefficient technician for scratch tests on indiscriminately chosen patients. The making of skin test materials has become a product of the highest technical skill, measured only by the equal skill it takes to do good skin tests and to interpret them.

The third group of allergic conditions can be placed in a category termed "contact allergy." The lesions affect the skin and manifest themselves as an "epidermal spongiosis," in its most typical form, poison ivy dermatitis. There is almost always a history of exposure. The patients have no history of previous allergy of the atopic type, and atopic individuals are no more subject to this condition than are those who are not allergic. There is, therefore, no familial history of allergy; there are no antibodies and no precipitins, and the only tests are the patch tests with lipoid soluble substances, which must be positive in a dilution which causes no reaction upon the normal skin.

From the immunological point of view, the sensitized tissue must be exposed adequately, by contact, to the causative substance or contact allergen. These are not antigens in the usual sense of the word.

The known external causes of dermatitis have been listed alphabetically by substance and by occupation. There are more than 1,500 known contact irritants, of which about 150 are plants, about 25 of which are responsible for almost 90 per cent of this type of contact dermatitis. In these patients, again, relief usually follows elimination, as exacerbation follows exposure. Testing requires skill, since the dilution must be such that it will not cause a positive reaction in normal skins exposed to the same contactant for the same period of time. Inadequate testing does not elicit the cause of the derma-

titis; too strong a test may cause a generalized exacerbation.

The fourth group of patients are those sensitive to drugs. From a general point of view, the reaction is never that caused by an overdose of the drug (its toxicity), nor is it exaggerated pharmacological response (patient idiosyncrasy). It differs from the poisonous manifestation of the drug and is usually produced by doses far below the toxic or pharmacological limits. The drug may cause its effect by inhalation, injection, or contact as by absorption through the skin, and since there are as yet no known or demonstrable antibodies, the drugs must against be termed allergens and not antigens. The most common are well known to all physicians, namely, the iodides, bromides, aspirin, phenolphthalein, the barbiturates, quinine, pyramidon, atropine, the arsenicals, the sulfonamides and the antibiotics. There are a great many more.

The clinical picture of the typical allergic drug exanthem, when it does not cause typical atopic response, such as coryza, or asthma, or perhaps urticaria, may be characteristic only occasionally, as when seen in the response to bromides or to phenolphthalein. The same drug, as a sulfonamide or an antibiotic, may elicit a different type of skin manifestation in two patients taking it at the same time and itself may bring on various manifestations in the same patient, some of which, as with penicillin, may be delayed up to six weeks. A drug sensitivity may therefore not only prove its presence by wheezing, but by nausea, colonic spasm, and diarrhea, with bleeding from the urogenital tract, lymphadenopathy, joint swelling, or fever. When the skin is affected, the reaction may mimic the morbilliform or scarlatiniform rashes, or may resemble pityriasis, or the erysipeloid exanthemata. It may sometimes be bullous, or show itself as an erythema exudativum multiforme, an erythema nodosum, a lichen ruber, and exfoliative dermatosis, a purpura, or any type of nodular, ulcerous or pemphigoid eruption. The rash may be localized or disseminated, and sensitivity may be evoked by one means as ingestion and reaction by another, as by injection or application.

It is not necessary for the patient to have a definite history of drug ingestion as such, since he may have taken the drug unwittingly. There are many catalogues of the preparations containing individual drugs, the majority of which at one time carried no label indicating the presence of the offending substance. A patient sensitive to arsenic may ingest a sufficient amount to cause a rash from unwashed fruits or vegetables or from tobacco. A number of foods, such as shellfish, milk and eggs may contain a drug, due to the ingestion by the original animal from which the food product was derived.

There are some drugs which cause urticarial reactions, and extremely rarely, may give skin tests of the atopic type as exemplified by wheals with pseudopodia. The drugs which cause the acneiform type of eruption may also, rarely, give positive patch tests causing a skin condition similar to the original eruption. Patch tests may also produce an eczematous type of reaction in those cases in which there is an eczema, although almost every drug available commercially has, at some time or other, been described as causing untoward reactions. Since it is known by clinical experience that the rash following a single ingestion of the drug may remain with a patient for many weeks, although there has been but one exposure, dramatic relief should not always be expected to follow immediately upon elimination of any suspected drug. I have, myself, unwittingly given a patient a drug to which he was sensitive and seen the reaction last as long as six to eight weeks.

The fifth group of patients are those sensitive to infection, usually to bacteria, but occasionally to endotoxins, exotoxins, or bacterial metabolic products. The patients sensitive to fungi and to viruses also belong in this group, which is extremely complex in its variety. It includes the allergic reactions of the exanthemata, the viral diseases of smallpox and lymphogranuloma inguinale, as well as those of tuberculosis, syphilis, and the parasitic infestations. Skin tests, when done, are usually of the tuberculin type of reaction and are read in 48 hours. In these patients, the sensitized tissue has been adequately exposed to living agents, or their products.

Skin tests of the type described may be present in the following conditions: actinomycosis, aspergillosis, blastomycosis, cestode infestations, chancroid, coccidioidal granuloma, diphtheria, bacillary dysentery, filariasis, glanders, gonococcal infection, leishmaniasis, meningococcal meningitis, pneumonia, schistosomiasis, haemolytic streptococcal infections, trichinosis, tularemia, typhus fever and undulant fever. In these patients, the allergy as such may be a minor part of the problem. The patients are rarely treated for their allergy but rather for the original conditions, which, of course, are not typically allergic diseases. It is well to remember, however, that a part of the clinical picture is the obvious result of an underlying mechanism, allergic in nature.

The occasional patient who responds with bronchial asthma to an infected upper respiratory tract may or may not be allergic to bacteria. He may be classified as having asthmatic bronchitis, or his superimposed infection may be acting secondarily

to make him more susceptible to an extrinsic allergen.

The sixth group of phenomena, allergic in nature, are represented by those patients who present a sensitivity to "foreign proteins." These are, naturally, classified as drugs, although they are completely different. The substances may be biological materials of the homologous species. They may be heterologously derived, and include the proteins of the brain, testicle, kidney, pancreas, pituitary, liver, stomach, or eye. Patients sensitive to insect bites also belong in this group, and probably those sensitive to insulin, and the antibiotics also fit here, although they have been mentioned in the group of patients suffering from drug allergy.

Serum sensitivity, fortunately not as frequent as it once was, is an excellent example of heterologous serum causing "foreign protein" allergy. The reaction may be immediate, as urticarial, or delayed, as in serum sickness, and it may be local, general or systemic in type. The reactions may be associated with fever, urticaria, joint pains, lymphadenopathy, leukopenia and various types of eruptions. Since there is an invariable history of the injection of a foreign protein, the diagnosis is not usually difficult.

The patient with a suspected serum sensitivity should, however, be tested, if only to corroborate the diagnosis should the question of future injections arise, in which case it will be known that a sensitivity to serum of equine origin is perhaps not accompanied by a sensitivity to bovine or other sera, which in that case may be used instead.

The over-lapping of the various parts of the field of allergy are best exemplified at this point. We see patients with natural animal dander sensitivity, in whom there is no history of serum injection treatment. These are the patients who respond with immediate bronchial asthma, hives, or hay fever, to a tetanus antitoxin injection. We have other patients who have no known atopic history but who have previously received serum. They may respond in the same way, or with the other manifestations listed, upon the receipt of a second injection of tetanus antitoxin, the reaction being typically anaphylactoid and the patient resembling the sensitized anaphylactic animal. I have seen both types of reaction occur in the same allergic patient.

The last group of patients to be discussed are those presenting "physical allergy." The normal response to physical agents, such as heat, cold, light, mechanical irritation or mild trauma, may be an urticaria. The patients are not always otherwise allergic. Their symptoms can easily be reproduced by experimental exposure to the physical agent responsible for their condition. Such agents are remarkably specific in their nature, the patient in some cases responding to only a narrow band of wave lengths in ultra-violet radiation, or to two bands, as in one patient who responded to 2,300 Angstrom units and to 2,800 Angstrom units, but not to the filtered light above, between or below these levels. The reaction may be local, as in urticaria of the hands, or reflex and general, affecting the entire body. It may affect a specific system, as perhaps the skin, or the genitourinary tract, as in paroxysmal hemoglobinuria. Relief, on avoidance of the irritating factor is usually complete, and tolerance can often be acquired if exposure is carefully graduated. Such physical factors may also cause exacerbations of other forms of allergy, in which case they act as secondary agents, and in the absence of allergy, of themselves, cause no difficulty. The response is probably due to substances released by the tissue damage, as causing allergic reactions in the local tissue or in distant organs.

If this were all there were to the subject, the recognition and treatment of the different types of allergic conditions would not be difficult, granted that the physician had the knowledge, the necessary testing materials, and the virtue of patience to ferret out the causative allergen. Unfortunately, this is not true. Granted that the patient belongs to one of the seven groups listed, he may, relatively often in the presence of any of the agents which cause the difficulty, not respond. With a subliminal exposure, his symptoms may be subclinical; that is, he may not be conscious that he is wheezing, although examination of the chest proves the presence of sibilant and sonorous rales, varying in pitch and intensity. In some patients, in the presence of true, proven sensitivity, a secondary condition may be necessary on some occasions to cause obvious signs or symptoms.

Among the synergistic or predisposing factors may be such vague states as barometric changes, physical agents, irritating fumes, trauma, fatigue, excitement, emotional exhaustion, acute or chronic infection, focal sepsis, constipation, menstruation, over-exertion, the puberty or menopausal syndromes, and a number of other vague conditions, difficult to prove as mild hypovitaminosis, calcium deficiency, blood electrolyte disturbances, and temporary dysfunction of the gastrointestinal tract, or some of the ductless glands. At this point, the psychosomatic aspect of all of the problems must be given serious thought.

Given sufficient exposure, and the presence of the secondary exacerbating factors, it is obvious that the patient can respond in more than one way. His reaction may be acute, explosive, and exudative, but completely reversible so that he is well between attacks. His response may be so great that there is

permanent irreversible damage. The repetition of acute attacks, so frequent that reversibility cannot take place, may also lead, insidiously, to a chronic irreversible condition.

If the reaction is general in type, the patient suffers a "constitutional reaction" or allergic shock. When mild, there may be pruritus and an urticarial eruption. When severe, the patient may present dyspnea and wheezing, incontinence, and symptoms extending in degree to loss of consciousness. The concomitant signs may be a sub-normal temperature, slowing of the pulse, lowering of the blood pressure, the blood presenting a leukopenia and the blood chemistry, a prolonged coagulation and an increased non-protein nitrogen content, with a decrease in blood chloride, blood calcium and phosphorus. There may also be a decrease in sugar tolerance.

When the condition is localized it may affect almost any part of the body. In the nose and sinuses, the patient may present an acute or chronic coryza, of the allergic type or of the infectious or vasomotor types, superimposed upon the allergy, the patient demonstrating an acute or chronic sinusitis with polypi. The throat may be the seat of allergic tracheitis, as manifested by a chronic cough. The lungs may respond with asthma, or all three areas may be shock organs and their responses interrelated in the hay fever-bronchial asthma patient. The mucous membrane, punished by the allergens, loses its normal immunological response and is more susceptible to infection.

The eyes may respond with pruritus and epiphora, as seen in simple hay fever; severe cases progress to conjunctivitis or episcleritis. All portions of the eye may be affected, and there is a possibility in some cases of iritis, or uveitis. Cataracts are known to be associated with atopic eczema.

The organs of the ear have been described as the seat of allergic complaints in patients who suffer from Meniere's syndrome, or from vertigo due to food sensitivity. The eighth nerve effects, following streptomycin therapy, may, under these circumstances perhaps, be considered as allergic.

The skin, when it is the allergic shock organ, may present an urticaria or an angioneurotic edema, or an atopic eczema. The skin may respond with a number of miscellaneous dermatological conditions, such as localized or generalized erythemata, or exfoliative dermatoses. Drug sensitivities, as mentioned, may show themselves as purpurae, or as eruptions of the typical acneform type of skin reactions seen in sensitivities of the bromide or iodide types.

In the patients in whom the shock organ is the gastrointestinal tract, and who frequently give no skin tests, although sensitivity to food may be present, there are a number of possible manifestations of the acute or chronic type, which may be predominantly vascular, spastic, and occasionally, inflammatory. Benign allergic peritonitis is one such condition.

Using allergy in the broadest sense, the genitourinary tract may be the seat of paroxysmal hemoglobinuria, cystitis, nephritis and the infectious conditions, to which the response is both to the infection and the allergy.

The cardiovascular system may respond allergically with a periarteritis nodosa, or with a thromboangiitis obliterans, with allergic causes acting concomitantly. In addition, allergic patients may occasionally present hypertension, hypotension, precordial pain, and cardiac irregularity, as bradycardia, tachycardia and extra systoles. The heart may be affected secondarily, as in cor pulmonalae.

When the blood is affected, as in drug sensitivity, the most striking symptoms may be agranulocytopenia, or in aplastic anemia. Some patients with food sensitivities present a thrombocytopenic purpura. Others, free of symptoms in the hematological system, nevertheless bear witness to their allergy with a marked eosinophilia.

The central nervous system may show evidence of allergic reactions in epileptiform seizures, due to food sensitivity, and in headaches of the migraine type, due to the same cause. In younger people, there are often psychic disturbances, and it has been stated, with good authority, that in some of the patients with multiple sclerosis, and with transient paralysis, sensitivity may play a role.

The bones and joints do not escape; there are many authenticated cases of food sensitivity causing intermittent hydroarthrosis. Bacterial toxins and septic foci may cause joint reactions in the absence of joint infection.

It must be stressed that for some of the conditions listed, a good number may be non-allergically caused. Allergy is a great mimic. In any atypical case, in a patient who has a strong personal family history of allergy, an allergic cause should be suspected. This list of allergic conditions is, by no means, complete and the classification, by no means perfect. We must grant that there are many lacunae in our present knowledge. It is nevertheless possible to recognize and treat those conditions which are most often allergic; those which are rarely allergic, and those which are rarely, if ever, allergic in origin. The strong suspicion that allergy may play a part in the causation of any atypical condition often simplifies the treatment, and occasionally, makes it dramatically successful.

Water Fluoridation for the Partial Control of Dental Decay in Children's Teeth

Willard R. Bellinger, D.D.S.*

Topeka, Kansas

Children literally can drink their way to better dental health if the community water supply contains a sufficient amount of fluoride. The dental profession looks upon fluoridating water supplies as potentially the greatest public health measure that has come along in a generation.

The ultimate objective in most dental public health programs for children is the preservation of teeth. This objective may be accomplished locally through three avenues of approach, namely, (1) The institution of school dental health programs designed to promote needed dental care by local practicing dentists, (2) Dental health education, (3) Utilizing today's preventive measures for the control of dental caries (decay) in children's teeth, which includes the fluoridation of municipal water supplies.

Only the fluoridation of municipal water supplies for the partial control of dental caries in children's teeth will be presented in this treatise. This discussion is not intended to be a complete coverage of all available knowledge on the subject but is to provide general information for those interested in the fluoridation of public water supplies.

Through the fluoridation of public water supplies, the dental profession for the first time in its history proudly acclaims a prophylactic measure which benefits the entire community child population and which is divorced from the dental office treatment procedures.

Authorities agree that there is no difference between natural fluoride water and water adjusted to the optimum recommended concentration of fluoride. Many thousands of persons have been drinking water containing fluorides which nature placed in the water in varying concentrations. Furthermore, there have been no known adverse effects on persons who have consumed for all of their lives water containing fluorides in concentrations as high as the recommended 1.0 ppm for the controlled fluoridated water.

To be effective, ingestion of water containing the recommended concentration of fluoride must take place during the period of tooth development, or during the first 8 to 10 years of life.

The most common questions asked regarding the fluoridation of public water supplies are: "Will it do any good?" "Will it do any harm?" "What will it cost?" "What is the required procedure in order to start adjusting the fluoride concentration of a public water supply?"

"Will it do any good?"

Numerous studies[1,2,3,4,5,6,7,8] have disclosed an inverse relation between the fluoride content of the public water supply and the dental caries experience of those children using such waters. Saying this in another way, one-half to two-thirds less dental decay is experienced in those children who drink water containing a natural concentration of 1.0 ppm or more of fluoride. The same correlation between dental caries and fluoride waters was found to exist in the western third of Kansas where the natural fluoride concentration in the municipal water supplies averages approximately 1.0 ppm of fluoride.[9]

One of the earliest controlled fluoridation programs as a demonstration or research project was started at Newburgh, New York, in May, 1945.[9,10] Numerous other large studies were started after that date. The results of the Newburgh and of six other of the larger controlled fluoridation studies have been published in a manual prepared by the Council on Dental Health, American Dental Association.[11] A reduction in dental caries experience has been reported in all communities in which study projects have been undertaken. Some of these studies indicate a reduction in dental caries of more than 50 per cent in the younger age groups after a period of four to five years of fluoridation. The dental caries experience of children ages six and seven in Ottawa, Kansas, (.35 DMF and .62 DMF per child, respectively), after four and a half years of fluoridation of the public water supply, compares favorably with the DMF (Decayed, Missing, Filled) rate per child (.37 DMF and .74 DMF respectively for ages six and seven) experienced by the Grand Rapids children, after approximately five years of fluoridation of that city's water supply. The rates referred to above, after approximately five years of fluoridation in the two cities, represent reductions of 51 and 61 per cent in the dental caries experience for the Grand Rapids children ages six and seven. However, due to the lower dental caries experience for the Ottawa school children in 1946 when the fluoridation project was started (fluoride concentration prior to fluoridation was 0.30 ppm), reductions of 15 and 11 per cent respectively for ages six and seven, after 4½ years of fluoridation, accomplished approximately the same low DMF rates as were

*Director, Division of Dental Hygiene, Kansas State Board of Health.

experienced by the Grand Rapids children. Another favorable observation in the Ottawa project was an increase in the number of children free of dental defects. The greatest benefit was a 31 per cent increase per 100 children age seven who were free of dental defects in the deciduous (baby) teeth.

One of the best examples of the benefits derived from fluoridation was reported from Sheboygan, Wisconsin, where the number of five-year-old caries-free children increased from 26.92 per cent in 1946, when fluoridation was begun, to 43.1 per cent in 1950.[11] In these studies the younger children received the most benefit, which is to be expected, because they started drinking the fluoridated water earlier in life while more of the teeth were in the development stage.

A study was made in Madison, Wisconsin, and in Colorado Springs, Colorado,[12] to determine the comparative loss of teeth of persons living in Madison which has a public water supply containing a natural fluoride concentration of only 0.05 ppm and persons living in Colorado Springs with a public water supply containing a natural fluoride concentration of 2.60 ppm. In age group 10 to 14 years there were seven times as many extracted teeth per person in Madison; in age group 15 to 19 years, 22 times as many extracted teeth per person; in age group 20 to 24, 36 times as many extracted teeth per person; and in age group 40 and above, there were 32 times as many extracted teeth per person for the Madison residents.

A similar study was made of school children in different sections of Kansas in which the natural fluoride concentration varied from 0.30 ppm to 3.40 ppm. In grades one to eight, children living in the lower fluoride area (eastern Kansas) experienced from five to seven times more lost permanent teeth than the children living in the area of higher fluoride concentration (western Kansas). In grades 9 to 12 the lost permanent tooth experience was four to seven times greater in the low fluoride area.

As stated previously, there is no difference between water naturally containing fluoride and water which has had the fluoride content adjusted and controlled at the recommended concentration. Therefore, it is logical to assume that results from controlled fluoridation will eventually culminate in a situation equal to the lost tooth experience of residents of Colorado Springs as compared to the residents of Madison and the fewer lost permanent teeth experienced by children living in the higher natural fluoride areas in Kansas.

Due to the fact that all evidence points to definite beneficial effects from both natural and controlled fluoridated water containing an optimum concentration of 1.0 ppm of fluoride, it seems unnecessary to discuss further "Will it do any good?"

Now, "Will it do any harm?"

Again the statement, there is no difference between natural and controlled fluoridation of water. For many years, 3,000,000 persons have been drinking water with a natural concentration of fluoride of 0.9 ppm and higher with no adverse effects except mottling of the teeth when the concentration of fluoride was above 1.5 ppm. There have been no observed objectionable effects in persons drinking water at the recommended controlled concentration of 1.0 ppm of fluoride.

"What will it cost?"

The cost consideration of the fluoridation program is insignificant. Many proponents believe the cost is too cheap to make the program really appreciated. Because of the fact that the cost runs only 5 to 15 cents per capita per year, the program should be hailed as a real bargain. More money trickles through the fingers than this program costs. The saving which will be realized through lower dental bills is an important consideration. However, the greater benefit is in the improved dental health through less tooth decay.

The latest available figures as of December 1, 1951, indicate that there are 144 communities in 33 states which are adjusting the fluoride concentration of the public water supplies, benefiting a population of over 3,000,000 persons. In addition to those communities already fluoridating and those where fluoridation is either approved or under serious consideration, the total population which will be benefited by all of these programs will exceed 6,000,000. In Kansas, the two cities now fluoridating the public water supplies are Ottawa, using sodium fluoride at a cost of 10 cents per capita per year, and Horton, using hydrofluosilicic acid at an estimated cost of 13 cents per capita per year. Five cities in Kansas, Topeka, Junction City, McPherson, Lawrence and Baldwin, have approved the fluoridation program and numerous other Kansas communities are seriously considering the program.

"What is the required procedure in order to start adjusting the fluoride concentration of a public water supply?"

The Kansas State Board of Health recommends, for Kansas communities where the public water supply is deficient in fluoride, the fluoridation of municipal water supplies for the partial control of dental caries, when the fluoridation procedure is approved by the local dental and medical societies and where the community can meet and maintain the standards required by the Kansas State Board of Health in raising the fluoride content of the municipal water supplies to a concentration of 1.0 ppm of fluoride.

Communities desiring to obtain approval to

fluoridate their water supplies must meet the following requirements:

1. Written statement of approval from the local dental and medical societies.

2. Specifications describing: The chemical proposed as the source of fluorine; methods of storing and handling the chemical; feeding equipment; point of application; rate of water discharge (whether constant, variable, intermittent); automatic controls; safety precautions; and laboratory equipment.

3. Estimate of capital and operating costs.

4. City ordinance authorizing fluoridation by the water department and providing funds to cover the cost.

An important MUST for any community desiring to fluoridate its public water supply is a program of education to inform the public of the VALUE, SAFETY and ECONOMY of such an undertaking. Because the local dentists and physicians always are concerned regarding the health of the people, their approval and assistance in the development of the fluoridation project is both desirable and necessary to the success of the program. For professional and technical advice, the State Board of Health is able and willing to offer assistance. Where there are full-time health departments, the local health officer is the key person in developing the preventive program. In other communities, civic and service organizations, Parent Teacher Associations and other groups may sponsor the program in cooperation with dental, medical, engineering and public health groups.

Summary

Of all the public health programs, the fluoridation of public water supplies is the only one which has had a natural experiment on some 3,000,000 human beings. These 3,000,000 individuals have consumed for all of their lives water naturally containing fluorides in excess of 0.9 ppm and have suffered no known ill effects except mottled enamel in excessively high fluoride areas.

A program such as the fluoridation of public water supplies with its proven potentiality for reducing the incidence of dental decay in the teeth of children during the period of tooth formation, cannot be denied. It is significant that the program has the endorsement of national organizations such as the American Dental Association, the U. S. Public Health Service, the State and Territorial Dental Health Directors, the State and Territorial Health Officers, the Governing Council of the American Public Health Association, the American Water Works Association and the American Association of Public Health Dentists. The Kansas State Dental Association also has approved the program of fluoridation of public water supplies.

Fluoridation has proven to be an economical and efficient approach to the problem of the ever increasing prevalence of dental caries among children. Fluoridation of public drinking water is not and will not be a cure-all, it will not protect children's teeth completely from decay, but it is a tremendous step forward in the dental profession's fight against dental decay. A point to be remembered is that fluoride cannot safely be added to water by the homeowner.

Fluoridation of public water supplies deficient in fluoride results in:

1. Less tooth decay.
2. Better and more attractive teeth.
3. Reduction in illness which may be due to infection as a result of abscessed teeth.
4. With fewer decayed teeth, the cost for filling teeth is reduced.
5. With fewer teeth lost through extractions, the need for future replacements is reduced.

Other points in program's favor:

1. The cost is negligible, only 5-15 cents per capita per year.
2. There has been no observed objectionable effect in persons drinking water containing the recommended controlled concentration of 1.0 ppm of fluoride.
3. Fluorides in the public water supply have no deleterious effect on the products of industry.
4. Fluorides in the water produce neither taste nor odor.
5. Fluoridation of public water supplies may be the answer to the shortage of dental manpower in years to come.

It is the opinion of the author that within a few years the community without the recommended concentration of fluoride in its municipal water supply will be the exception.

References

1. Kramer, L. R., Fluorine Studies in Kansas. Journal Kansas State Dental Association, 29:18, April, 1945.
2. Ockerse, T., Endemic Fluorosis in Kinhardt and Gordonia District, Cape Province, South Africa. American Dental Association Journal, 28:936, June, 1941.
3. Bull, F. A., The Role of Fluorine in Dental Health. American Dental Association Journal, 30:1206, August 1, 1943.
4. Deatherage, C. F., Fluoride Domestic Waters and Dental Caries Experience in 2,026 White Illinois Selective Service Men. J. D. Res., 22:129, April, 1943.
5. Arnin, S. S., Aberle, S. D., and Pitney, E. H., A Study of Dental Changes in a Group of Pueblo Indian Children. J.A.D.A., 24:478, March, 1937.
6. Dean, H. T., Arnold, F. A., Jr., and Elvove, Elias, Domestic Water and Dental Caries. V. Additional Studies of Relation of Fluoride Domestic Waters to Dental Caries Experience in 4,425 White Children, Age 12-14 Years, of 13 Cities of Four States. Pub. Health Rep., 57:1155, August, 1942.
7. Dean, H. T., and others, Domestic Water and Dental Caries Including Certain Epidemiological Aspects of Oral L. Acidophilus. Pub. Health Rep., 54:862, May 26, 1939.
8. Dean, H. T., and others, Domestic Water and Dental Caries. II. Study of 2,832 White Children, Age 12-14, of Eight Suburban Chicago Communities, Including Lactobacillus Acidophilus Studies in 1,761 Children. Pub. Health Rep., 56:761, April 11, 1941.
9. Bellinger, Willard R., The Dental Implication of Fluorine:

a review of the literature. American Dental Association Journal, 34:719-36, June 1, 1947.
10. Ast, D. B., Finn, S. B., and Chase, Helen C., Newburgh-Kingston caries fluorine study. III. Further analysis of dental findings including the permanent and deciduous dentitions after four years of water fluoridation. American Dental Association Journal, 42: 188, February, 1951.
11. Fluoridation in the Prevention of Dental Caries, Manual of the American Dental Association, July, 1951, p. 19.
12. McKay, F. S., Mass Control of Dental Caries through the Use of Domestic Water Supplies Containing Fluorine. American Journal of Public Health, 38:828-832, June, 1948.

Neurovascular Syndromes of the Shoulder Girdle*

Prepared by F. Stanley Morest, M.D.**

Kansas City, Missouri

The first speaker, Dr. John Withrow, traced the chronological development of the neurovascular syndromes of the shoulder girdle beginning with the discovery of cervical rib over 200 years ago. Removal of a cervical rib was performed in 1861 and relieved the symptoms thereof. Cervical rib was found in 303 out of 540,413 patients at the Mayo Clinic, an incidence of 0.056 per cent. In 55 per cent of their patients with cervical rib found on routine roentgenograms of the chest, there were no symptoms. Surgical treatment was instituted in only 36 of the 303 patients with cervical rib.

In 1927 Adson and Coffey pointed out that the scalenus anticus muscle could produce neurovascular symptoms which could be relieved by scalenotomy. Naffziger and Grant collected 51 cases of scalenus anticus syndrome in the literature up to 1938 with symptoms present but no cervical rib could be found on x-ray.

In 1943 Falconer and Weddell described the costoclavicular syndrome found in World War II in soldiers who carried packs on their backs. In 1944 Wartenberg described brachialgia statica paresthetica in which only the nerves are impinged upon and in which symptoms are independent of whether the arms are in hyperadduction or in hyperabduction.

It remained for Irving Wright in 1945 to make his valuable contribution of the hyperabduction syndrome. This is the most common of the so-called neurovascular syndromes of the shoulder girdle; consequently, it is very important. Obviously, many of the patients diagnosed as scalenus anticus syndrome in the past belong to Dr. Wright's group.

Morest in 1950 helped put forward the idea that the diagnosis, for want of a better term, could well be "neurovascular syndrome of the shoulder girdle" because in his opinion and experience so-called "mixed types," i.e., patients in whom both syndromes are present, are so frequent that it is not necessary to be so precise in diagnosis as to whether a scalenus anticus or hyperabduction syndrome is present. A more important concept is that a "neurovascular syndrome of the shoulder girdle" is responsible with one or both points of mechanical pressure active in the same patient.

The next speaker, Dr. Robert Stewart, dealt with the anatomical consideration and mechanism of production of symptoms in neurovascular syndromes of the shoulder girdle as follows: There are four main types of anatomic derangement of the shoulder girdle which may be responsible for neurovascular syndromes involving the upper extremities; namely, the cervical rib, scalenus anticus, costoclavicular and hyperabduction syndromes.

Cervical Rib: Extension of the transverse processes of the seventh, sixth or rarely the fifth cervical vertebrae. These may be fibrous or cartilaginous bands, in the absence of an actual rib structure with or without calcium deposition.

Pressure by one of these structures on the subclavian artery and/or brachial plexus may produce paresthesias, coldness, impairment of circulation and even gangrene of the fingers.

Scalenus Anticus Syndrome: Symptoms are due to compression of the subclavian artery by the scalenus anticus muscle against the lower and middle trunks of the brachial plexus between the clavicle and the thoracic rib.

That this syndrome appears in increasing frequency in middle and late life may likely be due to relaxation of the muscles, concomitant with older age, that normally hold the clavicle away from the first rib. Concurrently, the scalenus anticus muscle may not relax and the pinching of the plexus results in further spasm of the scalenus, as some fibers from the plexus supply the scaleni and a vicious circle is set up.

Costoclavicular Syndrome: Holding shoulders backward and downward with hyperextension of the neck causes pinching of the vessels and plexus between the anterior surface of the first rib and the posterior surface of the clavicle. This position

*Abstract of symposium presented October 17, 1951, by members of the staff of Research Hospital before the Greater Kansas City Heart Association at the University of Kansas School of Medicine.

**Vascular Department, Research Clinic; Department of Medicine, Kansas City General Hospital No. 1; and Department of Medicine (Vascular), University of Kansas School of Medicine.

is forced when soldiers or others carry packs on their backs.

Hyperabduction Syndrome: Two points of torsion when this position is assumed are: (1) The point at which the subclavian artery and vein and the main trunks of the brachial plexus pass posterior to the pectoralis minor just beneath the coracoid process of the scapula; (2) The point at which the artery, vein and plexus pass between the clavicle and first thoracic rib. Frequently there are found combinations of the aforementioned anatomic derangements in a given individual.

Diagnosis (Dr. Morest)

In about 80 per cent of individuals there is normally diminished volume or complete blocking out of the radial pulse at the wrist with the arms held in hyperabduction; or with the head turned to the opposite side; or with the neck in hyperextension and shoulders backward and downwards. So, how then can a physician be sure of the diagnosis of one of the neurovascular syndromes of the shoulder girdle?

The criteria advanced by Irving Wright for the diagnosis of the hyperabduction syndrome can also be applied in a fairly similar manner for the diagnosis of other of these syndromes. First, one or more of the following symptoms must be present: paresthesias in the fingers and/or hands, swelling, pain, coldness, cyanosis or necrotizing lesions. Second, there must be a history of the arms being in a faulty position, at least part of the time while the patient is either at work, at play, or asleep. Third, on putting the arm into a faulty position, which is an aggravating position, the volume of the radial pulse at the wrist must become less. Fourth, for the diagnosis to be correct, there must be partial or nearly complete relief with the arm kept out of the faulty or aggravating position. Those individuals who qualify on the third point only in Wright's diagnostic criteria are grouped in my classification as having "silent hyperabduction phenomena."

In examining a patient suspected of having one of the neurovascular syndromes of the shoulder girdle my experience is based largely on the 56 cases as compiled in Table I.

TABLE I—Neurovascular Syndromes of the Shoulder Girdle

Research Clinic (1948-51)	43
Private Practice and Consultation (1949-51)	8
Peripheral Vascular Clinic (University of Kansas) (1949-51)	3
Vascular Clinic (General Hospital No. 1) (1948-51)	2

These patients were classified further as depicted in Table II.

TABLE II—Neurovascular Syndromes of the Shoulder Girdle—Research Clinic (1948-51)

(A) Cervical Rib	1
(B) Scalenus Anticus Syndrome	5
(C) Hyperabduction Syndrome	24
(D) "Mixed Type" (B Plus C)	13
Total Cases	43

For a further analysis of those patients with hyperabduction syndromes only, refer to Table III.

TABLE III—Hyperabduction Syndromes Research Clinic (1948-51)

Chronic Osteo-arthritis Cervical Spine Complicated by Hyperabduction Syndrome	4
Hyperabduction Syndromes (Uncomplicated)	9
Hyperabduction Syndromes Complicated with Raynaud's Phenomenon	3
Hyperabduction Phenomena ("Silent")	4
Total Cases	20

Before putting the patients through any of the specific diagnostic maneuvers designed to elicit obliteration of the pulse, it is mandatory that Allen's test be performed routinely to check for any impairment in blood flow through the ulnar artery.

It was during surgical dissections for removal of the cervical ribs in this syndrome that Adson* demonstrated how turning the patient's head to the opposite of the involved side caused compression of the subclavian vessels and nerves with loss of the radial pulse, so-called Adson maneuver. I prefer to examine these patients standing with arm extended downwards and raised successively towards the midline of the body, then employing Adson's maneuver by asking the patient to extend the chin, draw in a deep breath, and turn the head as far as possible to the opposite of the side being tested while maintaining contact with the radial pulse. If either a cervical rib or the scalenus anticus syndrome is present, there will be diminishing to absent pulse volume. On occasion, this phenomenon occurs while the head is turned to the same, which is the involved, side. Another additional point to be sought is the degree of tenderness directly onto the scalenus anticus muscle. If the muscle be very spastic, exquisite tenderness can usually be elicited.

Another diagnostic test which has therapeutic value for scalenus anticus syndrome is to inject three cc. of one per cent novocain into the body of this muscle. Relief of symptoms in 5 to 10 minutes can be interpreted as evidence in favor of the diagnosis, providing a Horner's syndrome is not obtained also. In that event, it will be necessary to repeat the test as anesthetization of the cervical

*Personal communication, October 5, 1951.

sympathetic trunk may cause some relief on alteration of the vascular symptoms.

In testing for the presence of the hyperabduction syndrome, the patient may need to be examined while supine, providing that the findings are not satisfactory in the sitting position. With the patient sitting erectly and rigidly, and instructed not to move or bend, the arm is raised through varying degrees of hyperabduction while maintaining contact with the radial artery. The hand is placed in external rotation, the forearm held at a right angle with the arm by flexion of the elbow, and the arm is hyperabducted until the pulse blocks out. The condition in mild cases permits hyperabduction until the arm makes an angle of 180 degrees with the body, at which point the forearm is overhead with the palm upwards and over the patient's opposite shoulder. Record the angle at which the pulse blocks out.

The marginal position is about five degrees below the angle of complete blocking out of the pulse where only diminished pulse volume can be detected. It is when the arm is in this "marginal position" that the slightest movement causes the pulse to disappear or to re-appear.

On numerous occasions, I have corroborated the clinical observation of Wright of rebound arteriospasm during the performance of his test. This is elicited thusly: Having obtained blocking out of the pulse with the arm hyperabducted, maintain this position for three to five minutes, then, on slowly lowering the arm observe carefully the angle formed with the trunk at which the pulse re-appears. In all cases, in my experience to date, this angle was 10 to 25 degrees lower than the angle noted at which the pulse became obliterated when first raising the arm up through hyperabduction. In my own practice, I insist on this phenomenon being present in each case to complete the diagnostic picture because it proves that mechanical compression and/or torsion on the subclavian or axillary artery does takes place in the individual under examination while his or her arm is being held in the position of hyperabduction.

Only in cases needing further data to substantiate or refute a diagnosis is it necessary for the patient purposely to have his wrist tied loosely with the arm overhead toward the head of the bed in patients with hyperabduction syndrome; or, to the foot of the bed, in scalenus anticus syndrome, to note the time required before the patient requests to be released. Conducting such "faulty position tests" will frequently convince the physician as well as the patient of the correctness or incorrectness of a diagnosis, except that evaluation of the results is not so clear cut in the mixed types.

By spending considerable time in carefully examining patients for these conditions, I frequently found cases where both scalenus anticus and hyperabduction syndromes were present in the same patient. This led me to view these two syndromes as merely types of an overall condition; i.e., a neurovascular syndrome of the shoulder girdle. Hence, the patients with obliteration of pulse with arm in hyperabduction have a point of torsion existing where the vessels and nerves pass posterior to the pectoralis minor just beneath the coracoid process; those whose pulse blocks out during Adson's maneuver have a point of mechanical compression between the clavicle and the first rib. Separation of these two types can be done in some but not all patients.

Another point favoring this broad concept is that in some patients the radial pulse does not block out, even with the test conducted by very strict attention to all the details described, and with the arm positioned at 180 degrees of hyperabduction, unless and until the head is turned to the opposite or to the same side! Such a case then, in my opinion, could just as properly be called scalenus anticus syndrome, instead of being carried as hyperabduction syndrome which Wright does. This finding accounts for the larger percentage of "mixed types" in my series of neurovascular syndromes of the shoulder girdle. As a result of Wright's discovery, the hyperabduction syndrome is being recognized more frequently and the scalenus anticus syndrome diagnosed less often.

In testing for the costo-clavicular syndrome, have the patient stand in the position of military attention with chin extended upwards, shoulders backward and downward, arms at sides of trunk, maintaining contact with the radial pulse. Those whose pulses lose volume partially or completely and have symptoms and can meet the criteria advanced by Wright, will likely have the costo-clavicular syndrome.

It is not my custom to record oscillometric readings routinely in cases where the loss of pulse volume is complete or the findings clear cut. However, on occasion where there is diminishing pulse volume only on employing these maneuvers, it has proved helpful to visualize graphically the marked difference in oscillometric indices between an involved and an uninvolved extremity while being held in hyperabduction with the oscillometric cuff applied at the level of the wrist and starting at a pressure of 200 mm Hg. Similarly, by thermometric readings on the digits, lowered skin temperatures will appear after the faulty position is held for three minutes. Likewise, such a special study is made only on cases more difficult to diagnose.

In a patient with paresthesias, independent of whether the arms are in hyperabduction or in hyperadduction or any other postion, brachialgia statica

paresthetica of Wartenberg, also called nocturnal arm dysesthesia by the neurologists, must be thought of. Coolness of the skin is due to diminished blood flow to large nerve trunks of the brachial plexus.

Differential Diagnosis (Vascular—F. Stanley Morest, M.D.)

There may be several fancied but probably only three real vascular conditions with which neurovascular syndromes can be confounded. These, in order of their frequency, are Raynaud's phenomenon, thromboangiitis obliterans and scleroderma. In *Circulation* for August, 1951, Wright calls attention to the frequent occurrence of Raynaud's phenomenon with the hyperabduction syndrome. However, there was previous reference to the association of Raynaud's phenomenon with neurovascular syndromes of the shoulder girdle of the cervical rib and scalenus anticus types by Craig in 1937.

Wright reports the vascular complication of gangrene in patients with hyperabduction syndrome. However, several references to gangrene of the fingers and hands are mentioned by Love in his chapter dealing with other neurovascular syndromes of the shoulder girdle of the cervical rib and scalenus anticus types, in the textbook on peripheral vascular diseases by Allen, Barker and Hines, Jr. Likewise, one must not mistakenly call cyanosis which persists as a result of ischemia due to arterial compression, Raynaud's phenomenon.

The problem in some of these patients is to try to tell which came first, the hyperabduction syndrome or Raynaud's phenomenon. Some of my patients had symptoms of Raynaud's phenomenon years before complaining of symptoms referable to the hyperabduction syndrome; in others the two sets of symptoms began at approximately the same time; in still others, the history, if accurate, indicated complaints of the hyperabduction syndrome for months or years prior to the developing of Raynaud's phenomenon. The same problem was encountered in my patients with arthritis who also had hyperabduction syndromes, active or "silent," and in addition had Raynaud's phenomenon!

Thromboangiitis obliterans, with its findings of occlusive disease of the digital, radial or ulnar arteries, and the absence of an active hyperabduction syndrome, was not too difficult to recognize. However, in one patient at the Kansas City General Hospital No. 1, I found digital thromboangiitis and a mild scalenus anticus syndrome in addition.

Patients with scleroderma will show evidence of tightening of the skin over the distal phalanges, face or neck, sclerodactylia; or evidence of pulmonary, esophageal or cardiac valvular involvement.

Orthopedic Conditions (Harold V. Zuber, M.D.)

Dr. Zuber presented slides and comparative charts of the following orthopedic disorders to be recognized in the differential diagnosis of neurovascular syndromes of the shoulder girdle: ruptured and herniated intervertebral disc of the cervical spine; calcareous tendonitis near the shoulders; ruptures of the musculo-tendinous cuff in the region of the shoulder; so-called "frozen shoulder;" and bicipital tendinitis.* A detailed and thorough differential picture was presented comparing these orthopedic disorders of the shoulder and arm with neurovascular syndromes as to age; sex; symptoms; signs; gangrene; position aggravating syndrome or obliterating pulse or affecting surface temperatures of the fingers and hands; evidence of venous obstruction; venograms; x-rays; local anesthesia and therapy.

Roentgenological Aspects (John W. Walker, M.D.)

"The diagnosis of neurovascular syndrome of the shoulder girdle is never complete without radiological examination of the cervical spine and of the shoulder. There are many entities which are caused by intrinsic bone or joint disease of the shoulder, lesions of the cervical area, and the adjacent structures that can simulate the syndrome, particularly in those cases in which the neural lesion is most prominent and the vascular lesion is equivocal."

Dr. Walker then showed roentgenograms of narrowed intercervical discs with narrowing causing pressure upon the nerve root as it exists from the cervical foramina. Demonstrated by myelographic studies were herniated discs which caused radicular pain into the shoulder, arm and fingers. Primary lesions of the shoulder joint include subachromial bursitis of the calcifying type, primary osteogenic sarcoma, metastatic malignancy, and bone cysts of the shoulder and benign lesions of the shoulder girdle.

That the lesions are sometimes associated with neurovascular syndromes with elongated transverse process of the seventh vertebra and cervical rib, was also demonstrated by x-ray film.

Arthritic Aspects (C. Stewart Gillmor, M.D.)

In the differential diagnosis of the causes of painful shoulder, an outline of the following conditions occurring in order of their approximate frequency is presented:

Subdeltoid or subcromial bursitis (associated most often with calcareous deposits, particularly in the supraspinatus tendon)—at least 80 per cent of all cases; myofibrositis, eight per cent; arthritis of the shoulder joint, five per cent; rupture of the supraspinatus tendon (common following industrial accidents of the shoulder); and neuritis which is a very infrequent cause of pain in the shoulder.

Other causes of painful shoulder are cervical rib and scalenus anticus syndrome, arthritis of the cervical spine, with narrowing of the intervertebral foramina

*The first case in my series was a patient with scalenus anticus syndrome who had been diagnosed as having tuberculous tenosynovitis of the wrist.

(discogenetic disease), calcified cervical nodes, acromioclavicular separation, arthritis of the acromioclavicular joint, peripheral vascular disorders, cardiac disease (particularly following coronary occlusion) congenital deformities, apical pulmonary tumors, tuberculosis, syphilis (Charcot shoulder), bone tumors and metastatic carcinoma of bone (especially from carcinoma of the breast).

It is important to remember that arthritis of the shoulder joint is not common. Only five per cent of painful shoulders are found to be involvement of the bony structures itself.

Radiculitis of the cervical vertebrae and shoulder-hand syndrome, with its multiplicity of causes, should always be considered.

Neurological Aspects (Donald T. Coburn, M.D.)

The points which I will make in reference to pain in the upper extremity are as follows: I feel it necessary that anyone who has pain in the upper extremity, unless there is some obvious cause in the extremity itself, should have x-rays made of the cervical spine. Frequently we find changes in the spine of a destructive or arthritic nature or at times a congenital type lesion, so such films are practically a must. Many individuals who have had trauma to the neck, such as a snapping injury in an auto accident 15, 20 or 25 years before, will show osteoarthritic changes and narrowing of cervical disc space, which may account for the symptoms of which the patient complains. Also, there may be narrowing of the cervical disc space, which is part of the picture of a degenerating cervical disc with intermittent herniation laterally and intermittent root compression. As we know, many of these people have been thought to have had coronary disease of one type or another, and frequently they can obtain relief by decompression of the involved root.

The scalenus anticus syndrome is a common one from the neurosurgical standpoint, and we feel that the one diagnostic point in the scalenus anticus syndrome is point tenderness over the scalenus muscle, just above its insertion, that is just above the clavicle. All other findings given in scalenus anticus syndrome are helpful if present, but if only the point tenderness is present, and the patient has some symptomatology of a tight scalenus muscle, we feel that it is justifiable for a myotomy. The diagnostic procedure of injection of procaine into the scalenus muscle, as advocated by Mims Gage, is probably a satisfactory one but has not been employed, due to the many structures which one may penetrate in doing such an injection at that level.

The intraspinal lesions such as tumors within and without the spinal cord and syringomyelia must also be considered from a neurosurgical standpoint of differential diagnosis of pain in the upper limb. These, of course, are diagnosed primarily by neurological findings, but also by the use of the myelogram.

Treatment (F. Stanley Morest, M.D.)

If the diagnosis is correct, the treatment will afford relief and, as indicated by Wright, will be often quite dramatic. As a matter of fact, partial or complete relief is usually forthcoming in 24 to 36 hours in the majority of patients. This time interval in response to therapy could well be added as supplement to Wright's diagnostic criteria that keeping the arm out of faulty position brings relief.

In analyzing the activities of a patient over a 24-hour period, any faulty position assumed during work, play or sleep, as the particular case illustrates, must be corrected. Frequently, as in mechanics working with arms overhead, it will be necessary for them to change jobs, or omit a portion of the work responsible for using the arm in a faulty position. Two hairdressers of short stature continued by standing on low platforms when working on tall customers. Ironing by hand had to be given up by two patients with the scalenus anticus syndrome. Correction in faulty arm posture will of course be individualized.

It takes two or three weeks to train a patient with hyperabduction syndrome to sleep with arms down at sides, or with scalenus anticus syndrome to sleep with arms flexed at elbows and chest, or overhead. Patients with combined types in my series received the best relief by sleeping with arms over chest or abdomen. Loose bandages applied to wrists or pinning of gown or pajama sleeve to garment at level of the waist line will help. Other technics can be improvised by a thoughtful physician or patient. This constitutes the main part of the medical program.

Supplemental measures are designed to increase the angle formed between the clavicle and first thoracic rib by exercises designed to strengthen the so-called "elevator muscles" of the shoulder girdle, like the trapezius and elevator scapulae. Again, Wright has outlined helpful exercises, such as shrugging of the shoulders forward and backward while holding a five pound weight in each hand. Reaching exercises are carried out by the patient hanging from a horizontal bar or by extending arm upwards overhead and placing a mark on a door or wall. The patient tries to exceed his mark by one-fourth inch daily. I warn these patients to begin with only three times for each exercise and to progress by one more time daily, thus avoiding induction of any muscle strain. Likewise, increasing gradually the amount of the weight held in each hand, it will be possible to go from 5 to 20 pounds in several weeks, if necessary.

In my experience, these patients are apt to be

guilty of faulty body posture as well, and this must be corrected.

Some patients with pronounced arteriospasm or venospasm may require a stellate block by single or continuous method.* However, a gentle vasodilating agent administered orally or hypodermically will be satisfactory, as a rule. Pain and nervousness may need to be relieved. Any associated disease influencing the neurovascular phenomena may need to be dealt with. I injected three cc. of one per cent novocain into the scalenus anticus muscle to bring considerable relief in two of my patients. If a Horner's syndrome is inadvertently obtained, it will be necessary to repeat the injection in order to evaluate fairly the effect of relief of spasm of the scalenus anticus muscle, because interruption of the sympathetics by relieving the vasospastic factors would afford some relief.

With such a medical program faithfully carried out, results are uniformly excellent and fewer patients will need to be submitted to such surgical measures as scalenotomy or to removal of part or all of the first rib in the hyperabduction or scalenus anticus syndromes. Naturally, a cervical rib or band producing symptoms will have to be dealt with surgically.

Summary (F. Stanley Morest, M.D.)

Credit has been given to Wright for clearing up much of the confusion which has existed in the diagnosis and treatment of neurovascular syndromes of the shoulder girdle. He has described the hyperabduction syndrome which is the most common type of all. Anatomical dissections carried out under his direction demonstrate sites which are mechanically responsible for points of compression and torsion of the nerves and blood vessels.

Wright called attention to the long accustomed but erroneous method of testing for scalenus anticus syndrome by lifting up the arm overhead in partial hyperabduction. As a result of blocking out of the radial pulse, the diagnosis of scalenus anticus syndrome has been made in error, and patients have been falsely labeled when as a matter of fact their true condition was that of the hyperabduction syndrome. The clinical significance of the perpetuation of this erroneous interpretation has led to numerous scalenotomies unnecessarily. In my series, Miss H. S., who was not relieved by scalenotomy, obtained considerable improvement when the arm was kept out of hyperabduction, a position the patient unwittingly had maintained in her sleep for years.

In order to avoid mistaking the phenomenon of arterial obliteration, which occurs in about 80 per cent of individuals normally, for a neurovascular syndrome, Wright set up criteria for establishing diagnosis with more certainty.

Methods of testing for the presence of the various neurovascular syndromes of the shoulder girdle were demonstrated.

Differential diagnosis has been set forth clearly and in detail by the various speakers covering their specialties.

Finally, principles of medical management were explained which give such excellent results that the need for surgery has been reduced considerably.

*Continuous Stellate and Lumbar Blocks by a Safe Technic During Anticoagulant Therapy, in process of publication.

Annual Meeting, April 27-May 1

The 93rd annual meeting of the Kansas Medical Society will be held in Kansas City, Kansas, April 27 through May 1, 1952. This is the first time in many years that members of the Wyandotte County Medical Society have been hosts at the annual session, and they have been working for several months to present a program that will make this meeting of exceptional value to the physician.

In general the schedule of events will follow the pattern of former meetings, with only a few changes being made. The complete program will be published in the April issue of the Journal. The following summary will give an over-all picture of present plans for the event.

Scientific Program

The scientific program will begin on Tuesday morning, April 29, in the Kansas City, Kansas, Memorial Auditorium. Outstanding guest speakers will present papers through the day on Tuesday and Wednesday and until noon on Thursday. The following speakers are scheduled to take part:

Maurice E. Davis, M.D., Associate Professor, Obstetrics and Gynecology, University of Chicago —Obstetrics and Gynecology.

L. Kraeer Ferguson, M.D., Professor of Surgery, Graduate School of Medicine, University of Pennsylvania, Philadelphia—Surgery.

Thomas Findley, M.D., Professor of Clinical Medicine, Tulane University, New Orleans—Medicine.

George J. Garceau, M.D., Professor of Orthopedic Surgery, University of Indiana, Indianapolis—Orthopedics.

Bayard T. Horton, M.D., Associate Professor of

Internal Medicine, Graduate School, University of Minnesota, Rochester—Medicine.

Phillip J. Howard, M.D., Department of Pediatrics, Henry Ford Hospital, Detroit—Pediatrics.

R. D. Pruitt, M.D., Assistant Professor of Medicine, University of Minnesota, Graduate School of Medicine, Mayo Foundation, Rochester—Medicine.

Alfred Sugg, M.D., Ada, Oklahoma—Urology.

Owen H. Wangensteen, M.D., Professor of Surgery, University of Minnesota, Minneapolis—Surgery.

Clinical Program at Medical Center

A special feature of the Kansas City session will be a clinical program to be presented at the University of Kansas Medical Center, 39th and Rainbow, at 1:30 on Thursday afternoon, May 1, continuing for two and one-half hours.

The program will cover many of the newer phases of chronic rheumatic heart disease, with particular emphasis on the nature of the disease, its diagnosis, and treatment with the newer hormones and drugs and valvulotomy. Three or four patients will be presented initially with discussions of their clinical courses and the criteria of selection of those suitable and unsuitable for valvulotomy. Color television will then show the essential steps of this surgical procedure, including the measurement of intracardiac chamber pressures and simultaneous electrocardiograms on the oscilloscope. A clinical discussion will follow, directed by cardiovascular laboratory and pharmacology faculty members. The program will be concluded with a panel discussion by all participants, and visiting physicians will be given an opportunity to ask questions on chronic rheumatic heart disease.

A tour of the medical center, with members of the staff serving as guides, will be conducted after the program.

EENT Sessions

A separate program for eye, ear, nose and throat specialists will be given in the Memorial Auditorium on Tuesday, April 29, and Wednesday, April 30. Guest speakers will present papers at all sessions.

Scientific Exhibits

Scientific exhibits will be featured at the Memorial Auditorium. It is planned that they will be adjacent to the general assembly so that physicians will have an opportunity to study them as they enter and leave scientific meetings.

Round Table Luncheons

General round table luncheons will be held in the ballroom of the Town House, Kansas City's new hotel, on Tuesday, Wednesday and Thursday. The guest speakers who appear on each day's program will be present and will answer questions from the floor.

Annual Banquet

The annual banquet, which is always the Wednesday evening feature of the Kansas Medical Society meeting, will be held in the ballroom of the Town House. A short program will follow the banquet, and the evening will be concluded with a dance.

Sports Events

Monday, April 28, will offer a program of special interest to sportsmen. A golf tournament and a skeet shoot will be held during the day, and a tournament banquet will be held that evening at a Kansas City country club.

Affiliated Meetings

A number of groups not officially a part of the Kansas Medical Society will also meet during the session. The Board of Directors of Kansas Physicians' Service (Blue Shield) will meet on Sunday, April 27, at a time and place to be announced later.

The Kansas Academy of General Practice will hold its annual meeting on Monday, April 28. The complete program will be announced to members of the Academy before the meeting.

The annual convention of the Kansas Medical Assistants' Society will be held at the Town House on Sunday, April 27, and Monday, April 28, with members of the Wyandotte County group as hostesses.

The Woman's Auxiliary to the Kansas Medical Society will begin its annual meeting with registration on Monday, April 28, and will have a full schedule of events on Tuesday and Wednesday. Details of that program will also be published later.

Hotel Accommodations

Ample hotel accommodations are available this year, and lack of space will not prevent any who wish to attend from doing so. Although the Town House cannot supply rooms for all, major hotels in Kansas City, Missouri, will reserve accommodations for physicians during the time of the meeting. Among the hotels at which reservations will be made are the Continental, the Phillips and the President.

A room reservation blank was recently mailed to all members of the Kansas Medical Society. Physicians are urged to fill in the blank immediately and mail it to the Kansas City Chamber of Commerce, Town House, Kansas City, Kansas.

PRESIDENT'S PAGE

Dear Doctor:

We are today faced with three dynamic factors of influence. One is apathy among our own profession regarding the problems that we are currently faced with and will be in the immediate future. Second is inflation, and third is the socialization of our profession. If these forces are to be met and contained, there must arise from each of us a prompt realization that the obligation is ours alone. They are not of the variety that can be readily placed upon the backs of someone else.

Power is the expenditure of energy. The energy may be influence, it may be money, it may be electrical, mechanical or even atomic. Furthermore, it can also be a combination of any of the above. I feel that we shall in the near future need to exercise energetically our power of influence supported by substantial financial contribution in the selections of our choice, the men in whom we can have confidence and the men who we feel possess the courage to defend the conviction shared jointly by both—the Voter and the Legislator.

Inflation is being accentuated presently by some 25,000,000 people regularly getting checks from our government, notwithstanding the fact that each family now owes as their part of the national debt, approximately $7,000. It is now costing nearly two times the total of all federal taxes collected in any one year before 1940 to simply pay the civilian workers to staff the federal bureaucracy, which amounts to some eight billion dollars annually.

We have today the best medical care in the world, yet we are being constantly needled and the public is being misinformed about the methods and the results of compulsory health insurance; is it not now time for each of us to become realistic enough to appreciate the hard facts of politics? The facts are, if you want something you must be willing to pay for it. Do we as members of a profession in Kansas, and as citizens of the state of Kansas, want to pay the price necessary to insure the progress of medical care and the maintenance of free enterprise?

I am very happy indeed to report to you that the Inter-professional Advisory Council is working. The sincerity of approach, the magnificent expenditure of time and effort, together with whole hearted unselfish cooperation from all bodies and institutions affected is demonstrated by mutual agreement between the Social Welfare Board of the State, the Legislative Council, the Kansas Pharmaceutical Association, the Kansas Hospital Association and the Kansas Medical Society to make a state-wide survey of the costs of health care given the unfortunate of our state. Further demonstration is the agreement to adjust any inequities, if they exist, basing adjustments upon joint findings. The opinion is shared by all, that the citizens of Kansas are entitled to know why and where this part of their tax money is being spent.

In conclusion I would like to quote the Central Dads' Club of Dallas, Texas, in attempting to emphasize the above message. Quote . . . in part:

"Probably at no time in the history of the United States has it been so important for the American to understand the fundamental principles underlying the development of his Government. In a Democracy, as the United States, we have come into possession of many privileges as expressed in our great documents, such as the Bill of Rights. EACH PRIVILEGE CARRIES A RESPONSIBILITY. Democracy, Civics, or Citizenship cannot be treated as an isolated subject to be studied and then put aside. It must be a continuous process. It must be incorporated in all phases of our daily lives, in the home, school, church, business, recreation and GOVERNMENT."



EDITORIAL COMMENT

Socialism by the Inch

The present Congress has shown very little interest in socialized medicine. The administration sponsored bill was given a cool reception, and on two occasions Congress blocked the President's attempt to give his Federal Security Administrator cabinet rank.

Viewed from the position of those who would preserve free enterprise this represents a victory, but the advantage is attended with problems. Two big ones come to mind immediately. The apparent victor is inclined to relax his efforts while the loser will probably increase his and in a new direction. Both of these factors appear to be in operation at present. Only a small imaginative effort can magnify the new problem to frightening proportions—maybe something like this.

Create a situation with the dominant political party failing to realize one of its platform objectives on the grounds that the public would not accept it, and this party has two courses to follow. It may admit its error or attempt to prove the justice of its position.

Should the latter be the charted course, it is only natural that increased effort will be expended toward showing that the private practice of medicine cannot succeed. A dominant political party ALMOST has the power to do this. Here is where imagination enters the discussion.

For one thing private enterprise may be taxed out of operation. Secondly, it may be regulated into impotency. Third, it may be criticized into martyrdom and finally, when those have been completed, the very forces that brought on destruction will step forward offering salvation—their kind of salvation.

In other words, how could socialized medicine arrive easier than to render private practice untenable? Proponents who wrecked this system may then step forward with a story of how they gave free enterprise every oppotunity and in the face of obvious failure advance the program that works!

Such processes are not now in operation? What of federal anti-trust suits challenging Blue Shield in Oregon, the A.M.A. generally, ophthalmologists all over the country? What of the increasing conscription of physicians for military duty and the wailing over doctor shortages? What of tax programs that virtually prohibit bequests to hospitals and the resultant increased cost of hospital care? What of expanding medical programs for veterans and service men's families? What of social security generally, the enlarging aged population and added benefits for those persons? What of plans to increase the training period for nurses until this service is regulated out of existence except under government operation? What of hospitals built under Hill-Burton aid that are forced to close under private operation but will be reopened by the Federal Security Administration? What of a hundred and one other problems that might be cited?

Today the public wants medical care under the free enterprise system but not at any cost. It wants medical care more than it wants free enterprise. There can come a time when free enterprise is so awkward that it crumples under oppression. If such outcome is to be avoided, the only solution is to give free enterprise air to breathe.

This is imaginative. Perhaps these are words that are not understood. Maybe there is nothing to all this talk. Maybe we are wrong, but look—If I find a stray dog and hold his head under water he will shortly be unconscious. With artificial resuscitation I can cause him to breathe again. Then he is mine. He certainly was of no use to anyone as he was and I saved his life, didn't I?

The Rule of Kings

Mr. Hobart C. Brady, former president of the American Realtors Association, was the guest speaker at the Annual Conference of County Society Officers held at Wichita on Sunday, January 27, 1952. Mr. Brady is a much respected citizen and a public speaker in wide demand. His sound philosophy, his clear, uncompromising analysis of democracy is a message that will be long remembered by all who heard him.

Mr. Brady's speech on this occasion made ingenious use of a Bible passage, a story contained in I Samuel 8, verses 1-18. By way of background, he submitted the principle that excessive federal control always destroys individual initiative, whether under socialism, dictatorship, monarchy or a fair deal. Controls of this type are seldom stolen from the people; they are given away. When a population loses interest in self government it requests someone to make the decisions. Alterations in government may be abrupt or gradual, but the story is always the same.

A problem becomes troublesome and instead of cooperating for a solution the people turn it over to government. Immediately they have lost this much freedom, and as such practices continue the people become weaker and more dependent upon officials to do their thinking and their directing for them. It presents a vicious circle that leads blindly around the same path, and as such government

progresses it becomes increasingly difficult if not impossible to reverse the condition.

This isn't new. It is the history of virtually every nation on earth with the exception of a few instances where revolution or invasion overthrew existing governments. It was true in biblical times which the passage quoted above illustrates in dramatic fashion.

The Jews after being liberated from bondage, after being fed 40 years in the wilderness and finally given the promised land, had grown soft. Some of their officials were taking bribes and distorting justice. The people complained, but instead of solving their problems they looked for an easy way out. They asked Samuel to give them a king!

Samuel objected but spoke with the Lord about it. This conversation offers a startling analogy to today's situation. The Lord said to Samuel—let them have a king if they want one, but tell them what will happen if they do. From there the Lord recites what a king will take from the nation.

He will conscript an army and he will build defense plants. He will select the best men and women of the nation to serve him. He will increase their taxes and tell them what they shall do.

Read that passage for an account of the process of government by direction. That is from history of long ago, but the sequence of events remains unchanged to this day.

Indigent Health Care Survey

During the past six months the Kansas Medical Society has been conducting a survey on indigent health care costs. This project was undertaken because of criticism directed at the medical profession for increased expenditures. The Society determined to learn the truth.

After six months of study, with some 30 county societies cooperating to supply financial data, with the State Board of Social Welfare aiding in many respects, with much help from the Kansas Hospital Association and the Kansas Pharmaceutical Association, all parties agreed that no one knew a great deal about this problem even after the survey.

In spite of the best efforts of everyone concerned, it seems certain that no one has complete figures and that statistics available at this time are unreliable. Insurance type programs operating in some 22 counties present accurate records of their activities, but in these areas much additional health care was provided outside the insurance set-up. No one knows how much that was. In fee-for-service programs it was not possible to obtain figures on expenditure for services rendered outside the county. And so on.

This is not to imply that the survey was of no value. It actually was of considerable aid in three areas. It provided a better knowledge of the indigent care program than was available before; it illustrated wide variations in cost, in service and in usage rates in the different counties; and it dramatically pointed toward the need of a more complete study.

Until the Society survey, it was known only that some counties at relatively low cost were reasonably content with their programs while others at high cost were dissatisfied. The complete cause is still not altogether clear, but some factors are better understood today than before. There is, for example, a wide range in hospital costs among different counties as well as in hospital usage rates. Total medical usage is another variable that affects the program.

Dividing total services performed per month into the total persons eligible, the rates jumped from 30 per cent, the lowest, to 250 per cent in the highest counties. Other imponderables include the fact that among the highest cost programs physicians often receive the least for their services.

According to the Board of Social Welfare, the highest rate of payment for insurance programs is currently six dollars a month per unit. At the outset it is known this cannot pay usual costs for complete medical, hospital and drug care for any population group and especially for the indigent who understandingly will experience an abnormally high usage rate. Therefore, at any figure even near the present, considerable reduction in charges will have to be made.

Hospital administrators and pharmacists have met repeatedly with your president and are offering real and heartening cooperation in setting up formulas to jointly absorb these deficits. However, this cannot be reduced to the practical elements of figures until the true cost picture is known.

On Friday, January 25, 1952, representatives of these groups met with the Board of Social Welfare at Topeka and obtained the promise that a complete and total study would be made of indigent health care costs. Blue Cross-Blue Shield statisticians will aid not only in obtaining the data but will balance the results against their own experience figures. The Board of Social Welfare will actively participate in obtaining accurate information in all necessary counties. The Research Department of the Legislative Council will cooperate in contrasting Kansas experience with that of other states and preparing legislation should that appear necessary.

The three major health service agencies involved, the Kansas Hospital Association, the Kansas Medical Society and the Kansas Pharmaceutical Association, will participate in an advisory capacity. It appears at this time that these groups will determine what information is needed and will aid in obtaining

whatever might be necessary from the profession involved.

Just what will be required is not known at the present time. The basic figures will establish how much is currently being spent and what for. An analysis of this information should present clues for future action. It is not expected that the physician should receive full fees for indigent work, but certainly the average for all services should exceed $1.92 per service rendered, including obstetrics and surgery, as is the case in one county.

Anyway, a beginning has been made and even though the final results remain a considerable distance away, they now show promise of fulfillment. In the end all parties concerned will have accurate figures to use in the computation of their experience, and with that available certainly some adjustment can be made to establish a service that will be more satisfactory than the current situation.

Are Defense Bonds a Good Investment?

The current controversy over the advisability of purchasing and holding United States Savings Bonds has many facets and many participants, and is reaching a crisis this year when many bonds held by World War II purchasers mature. The street corner economist is as voluble on this subject as a football enthusiast who regularly expounds as a Monday morning quarterback. To some extent all of us are influenced in our thinking by the articles we read and the arguments we hear.

The Journal recently received a pamphlet containing an address given by Sylvia Porter, financial editor of the New York Post. To the question, "Are defense bonds a good investment?" she answered an emphatic "Yes." She defends her answer by outlining the four most common arguments of those who oppose her point of view and refuting each charge.

Argument No. 1: That the dollar between 1941 and 1951 lost so much of its value that if you put money in a bond, you have taken a licking. "This is true," she says. "The dollar's buying value did start declining at the beginning of the Second World War and it hasn't stabilized yet. But the fact of the matter is that we have fought and won a global war. The fact of the matter is we have suffered, with every other country, a post-war inflation . . . We can stop this spiral only if we get together on a tough, real, honest anti-inflation program, and a basic part of that program must be the sale of United States Savings Bonds, the stimulation of thrift, a sound distribution of the debt . . . And as for those of us who have lost buying power through our ownership of bonds, let us never forget that, among other things, we bought the freedom to be able to get together here and talk the way I am talking."

Argument No. 2: If I had bought stocks, look how much ahead of the game I would be now. "Yes, true," says Miss Porter, "if I had bought General Motors in 1941 and if I had had sense enough to hold it until 1951, and if I had sense enough not to get out when it went down below my purchase price and not to cash in when I had a five-point profit, I would be way ahead of the game . . . This argument takes for granted that the average citizen is so bright he'll do all the right things and do them all at the right time. And what nonsense to suggest that 152,000,000 of us will be bright enough to buy at the right time and to sell to each other at the right time so that we all can make money. How ridiculous! Somebody bought the stocks from the people who sold them in '29 . . . Nobody ever jumped out of a window because he owned a United States Savings Bond."

Argument No. 3: By boycotting savings bonds, we can force a retreat by a spend-thrift government, show the wasters of our tax funds how we feel. "This is only biting off our collective nose to spite our collective face . . . We intensify the evil, however, do precisely the wrong thing when we attack the soundest form of government financing—sale of savings bonds."

The final argument: Put the cash somewhere else, into goods and pleasure. "The $50 which is spent on some luxury or some semi-necessity disappears into someone else's pocket and while you may have a wonderful time on a particular evening, you get up the next day with a hangover or you find the next week that you have put on five pounds. These are facts . . . But the money you put into savings bonds is saved.

"My message to you is 'Face up to the attacks and the facts,'" Miss Porter said in conclusion. "Fight for this program, fully convinced in your mind, as well as in your heart, that it is a good one and a worth-while one. Be ready to meet and, by logic and conviction, to defeat those who would dance their mournful little jig on the ruins of the American economy."

Army-wide venereal disease incidence in 1950 showed a considerable decline over the previous year, according to a release from the Office of the Surgeon General. For troops in the United States, venereal disease incidence in 1950 was the lowest recorded since the Army first began collecting medical statistics in 1819. The average daily percentage of Army personnel unavailable for duty because of venereal disease declined from .15 of one per cent in 1947 to .01 of one per cent in 1950.

Interim Session of the A.M.A.

Nearly 9,000 people attended this very interesting and stimulating session. The weather was most unusual due to the fact that there were two rainstorms and no smog. No rain had fallen for months, but since then California has resembled Kansas last July.

I was most favorably impressed by the Public Relations Conference which was held two days prior to the beginning of the actual House of Delegates meeting. It seemed so outstanding to me that a brief report of a part of its program seems apropos. In the first place, the keynote address delivered by President-elect Bauer was entitled, "Working Together in 1952," and one of the significant statements made not only by him, but also by President John W. Cline was, "In every country on the face of the earth where there has not been a strong medical organization, the government has taken over the care of the sick."

Another highlight to me was the address given by Dr. Ernest Dichter, a Ph.D. who is the psychological consultant in public relations for the American Medical Association. This was a masterpiece because he pointed up so clearly the psychological conflict between idealism and realism in the patient-physician relationship. The idealism consists of love, respect, consideration and an understanding partnership between an individual patient and his physician on the one hand and the hard boiled realism of money, consisting of the fee for service, on the other. He believes that what is needed most is a frank discussion of both by individuals involved. He gave evidence to prove that lowering of fees is not necessarily the answer. He criticized us, justly I thought, for our failure as individuals to assume our responsibilities as citizens. We thus fail to keep abreast of the cultural changes of our day. We need to work together more in this realm.

Another highlight in this Public Relations agenda, presented by Dr. Cyrus W. Anderson of Denver, is a "Code of Cooperation." This is a code which has been accepted between local medical societies and the press and radio. He emphasized that medical news is important to these media of communication and that in most areas they are anxious to do a creditable presentation. This code has resulted in much better understanding and therefore betterment in public relations. Copies are available and have been judged to be a very fine step forward in the proper handling of medical news.

A third point which seemed apropos to me was the experience of the Michigan State Medical Society in public relations. It seems that their efforts stand out as being superior to any other state in the union and I was, therefore, interested in their technique. They began with what they termed a "Formula for Freedom" and divided this into three phases entitled 1. "Know Yourself." 2. "Know How To Live." 3. "Know Your Government." With this as a basis, the state society assigned a state lay group to each one of its own standing committees and requested that this medical committee work its way into the councils of the lay organization on a state level. They have done this so perfectly that there are no less than 80 other state organizations in Michigan having medical men in their councils. It seemed to me that this was a feasible plan for the state of Kansas, since it would so automatically widen the scope of ethical medical participation in citizenship and at the same time divide the responsibility among more of our members. This is particularly true this year and next, with our president and our Council presently concerned with the very important political and public relations problems. Mr. Ebel, our efficient executive secretary, can furnish further details if and when they are needed.

House of Delegates

The House of Delegates meeting itself was again a potent demonstration of the democracy of the American Medical Association. There were in attendance some 200 delegates from all over the United States and any one of them or any state organization was privileged to present a resolution if it so desired. There were the usual number, many of which were duplications of the same ideas. These resolutions were all assigned to one of the various standing committees, and it is the privilege of any state or delegate to appear before those standing committees on the following day to amplify or explain any portion of the resolution. The standing committee then returns to the House of Delegates with a consummate resolution which is either passed or rejected by the entire House of Delegates.

There were some reiterations and bringing up to date of the things about which we had previously heard. First, the presentation of interesting facts. For instance, there are now 77,000,000 Americans covered by some sort of pre-pay hospital or medical plan. The Blue Cross has enrolled some 40,000,000 people and Blue Shield 22,000,000 in the United States. Second, the American Medical Association has a budget of some $9,000,000, most of which goes for the work of the councils and committees to improve the science of medicine. Third, the presentation of another half-million dollars to the National Medical Educational Foundation was completed. It is to be hoped that more and more doctors throughout the United States and particularly the state of Kansas will include this most worthy cause in their donation schedules. Fourth, encouragement in the plan of having local medical society

grievance committees and to publicize their existence. It has been proved over and over again that these committees are not only worthwhile, but have actually improved the standing of the physicians wherever they have been inaugurated. Fifth, at the county medical society level, development of 24-hour emergency service on a rotation basis. Where this has been done, improved public relations exist.

A resolution concerning the Veterans Administration care of non-service connected disabilities, which your delegates thought was an excellent one and should be adopted, was side-tracked by the formation of a special committee to study the problem. It may well be that this was a wise move from a political point of view; however, it seems very certain to many delegates that the Veterans Administration is encroaching on the private practice of medicine and moving in Socialism through a side door and that the American Medical Association should meet this problem head on and take a definite stand against the present Socialistic trend which is so evident in that field.

Even a brief report of this very excellent meeting would not be complete without a word concerning two very outstanding events, one in the realm of public relations and the other in the realm of scientific medicine. The former was a public meeting in the spacious Shrine Auditorium which held 7,000 people and consisted of a forum discussion of present day political subjects by Ohio's Senator Taft and Virginia's Senator Byrd. There was a capacity audience, the speeches were telecast and broadcast and both were received with tumultuous applause. These gentlemen were presented by Dr. John W. Cline, who stressed the non-partisan character of that particular meeting as well as the non-partisan character of the American Medical Association. The delegates were given reserved seats and were taken from the hotel to the auditorium, a distance of some three miles, in chartered buses so that all was made easy for us. After this, a buffet dinner and reception for both of the senators was held and it was our pleasure to meet and talk with these as well as many other political notables.

At the Hawaiian banquet given the delegates by the Los Angeles Medical Society, the well-known actor and toastmaster, Leo Carillo, was to have presided. It was announced that his absence was because Governor Warren had asked him not to appear before a group of American doctors. As you all know, Governor Warren advocates socialized medicine and American medicine openly opposes Governor Warren for that reason.

The history making scientific accomplishment of this meeting was a color-televised operation for coarctation of the aorta which was received by us some miles away from Los Angeles General Hospital and was also received in Chicago and in New York City. It was the first time in the history of the world that such a nation wide hook-up had been accomplished and it was tremendously interesting, not only to watch the actual surgery, but to hear a consultation between the surgeon doing the operation with a cardiac surgeon sitting before the television set in New York City. They freely discussed the technique as the surgery was progressing, one on the Atlantic seaboard and the other on the Pacific coast. Another notable occurrence which caused a feeling of pride in your delegates was the announcement on the part of the moderator for the Smith, Kline and French Laboratories which put on the program, who said in his introductory remarks, "The University of Kansas Medical School is today the first and only medical school in the world having color television for teaching purposes."

It was indeed a great pleasure for your delegates to have one of our alternates attend. Dr. George Gsell of Wichita was present at this meeting and was indeed helpful in giving us his ideas which aided materially in reflecting the sentiments of Kansas doctors. Your delegates feel a high responsibility in that attempt and invite your comments and suggestions. The next meeting will be the annual meeting of the American Medical Association which will be held in Chicago next June and it is to be hoped that Kansas will send to that meeting a large number of doctors who, I am sure, will find the entire program beneficial in every way.

L. S. NELSON, SR., M.D.
Delegate to the A.M.A.

Drug Offered for Research

A rare drug, so costly that it can only be given away, not sold, was offered to science recently by the research division of Armour and Company, Chicago, in the hope that someone will find out what it does and whether it has any drug value. The new material, a co-enzyme known in laboratory shorthand as TPN, was one of a number of rare biochemicals described in a scientific exhibit shown to the American Association for the Advancement of Science. It contains nicotinic acid and may be the active form of the vitamin in the body.

TPN is extracted from liver by a complex process which yields only a few milligrams from a hundred pounds of raw material. Estimates are that it would cost about $800 a gram, or $363,000 a pound, if there were a pound.

Scientists who have hopeful ideas about the substance may secure it from Armour and Company, while the supply lasts, in quantities of 50 to 100 micrograms.

Case Report from the University of Kansas Medical Center Clinical Pathological Conference

Edited by Glen R. Shepherd, M.D., and Mahlon H. Delp, M.D., from recordings of the conference participated in by the departments of medicine, obstetrics and gynecology, pathology, surgery, and radiology, and the junior and senior classes of medical students.

Case Presentation

B. S., a 34-year-old negro female, gravida 6?, Para V, was admitted to the University of Kansas Medical Center on September 1, 1951, and expired September 9, 1951.

The patient had been well until May, 1951, at which time she had had three episodes of profuse uterine bleeding within 30 days. Her last menstrual period was in June, 1951, when she developed pains in the lower abdomen and became constipated for more than one week without results from laxatives or enemas. A doctor diagnosed pregnancy. The pain continued.

Another physician confirmed her pregnancy and added a diagnosis of "inflammation of the bowel." She improved with therapy but pain continued. Bowel movements became regular and remained so until the day before admission. She noted weakness, exhaustion, a white odorless vaginal discharge and swelling with pain in the right leg for three months before admission. Four weeks before admission her abdomen enlarged considerably followed by "gas pains." This was followed by increased respiration, rather severe low back pain, urinary frequency with occasional dysuria, chills and fever. Nausea and vomiting occurred intermittently. The evening before admission she passed about one pint of dark blood from the rectum. She was in bed for one month prior to admission.

On physical examination her temperature was 99° F., pulse 140, respiration 32, and blood pressure 84/50. Inspection revealed a very acutely ill, dehydrated, colored female with cold clammy skin, who was more comfortable sitting up. Chest was clear. The heart was not enlarged nor were murmurs noted. The abdomen was distended, fairly soft, with generalized tenderness most severe in the lower abdomen. The liver, palpated three fingers below the costal margin, was tender with a sharp edge. A cystic, tense, tender mass was felt rising from the pelvis and extending toward the right. Bowel sounds indicated intestinal hyperactivity. Pelvic examination revealed a brownish white membrane of the vaginal walls. A pale soft very patulous cervix was pushed down and anteriorly by a pelvic tumor in the midline. This tumor was roughly globular, smooth with a cystic upper pole, had some nodularity and was partially mobile. The cul-de-sac bulged downward from a firm irregular nodular mass six-eight cm. in diameter which seemed to be attached to the above mass and the cervix. The rectum ballooned with the cul-de-sac mass. Its anterior wall was nodular with a cauliflower-like sensation but was not friable. There was one plus pitting edema of both legs, especially the right leg.

Laboratory findings were as follows: Urine on September 1 showed a specific gravity of 1.010 with two plus albumin and a faint trace of sugar, four-six red blood cells and occasional pus cells per high power field. Complete blood count showed 3,180,000 red blood cells, 38 per cent hemoglobin, 43,200 white blood cells, 60 polys of which 54 were filamented and six non-filamented, 23 lymphocytes, nine monocytes, six metamyelocytes and two myelocytes with marked toxic granulation polys, and atypical lymphocytes. NPN was 58 mgm. per cent, CO_2 was 6.5 meq., checked 7.2 meq., blood chloride 77 meq., blood sugar 69 mgm. per cent. Wassermann and Kahn were four plus. Blood culture showed paracolon bacilli. Stool culture showed the same. Sedimentation rate was 30 mm. in 20 minutes, not corrected. On September 3, 1951, the icteric index was 13.5. Sigmoidoscopy revealed the mucosa to be edematous with dark blood in the rectum.

In the hospital, the patient's laboratory results

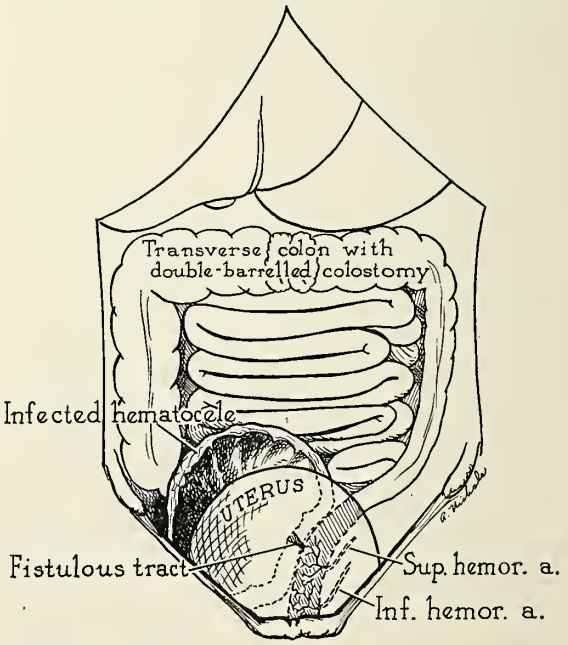


Figure 1. Diagram of anatomical relations of hematocele and sigmoido-uterine fistula.

suggested improvement following nasal oxygen, antibiotics, intravenous fluids and transfusions. The NPN fell to 40.5 mgm. per cent, the CO_2 rose to 18.5 meq., red blood count became 3,030,000, white blood count 30,000, hemoglobin 46 per cent, polys 86 with 83 filamented and three non-filamented, 10 lymphocytes, and four monocytes on September 2, 1951.

An exploratory laparotomy and colostomy were done on September 4, 1951. Profound shock developed during surgery but the patient responded to transfusion. Following surgery her condition remained poor with rapid pulse, variation of blood pressure from 80/70 to 120/70 and temperatures of 101° F. to 104° F. Respiration was rapid. On September 8, 1951, she became apprehensive. A marked fall in blood pressure occurred. Coma followed. The urinary output decreased. The NPN rose to 75 mgm. per cent. Blood pressure could not be obtained. The temperature rose rapidly to 106.4° F. and respiration was 44 immediately before death on September 9, 1951, at 7:45 a.m.

Dr. Mahlon H. Delp (Chairman): Are there any questions of Dr. Schrepfer?

Question: Was a Friedman or Aschheim-Zondek done?

Dr. Rosemary Schrepfer (Obstetrics and Gynecology resident): No.

Question: When was the last pregnancy?

Dr. Schrepfer: She had a normal pregnancy in January of 1951.

Dr. Delp: We have x-rays.

Dr. Galen M. Tice (Radiology): I will show these films as the picture developed in the x-ray department.

The most impressive finding was this circumscribed shadow in the mid pelvis. Complete opacity below this structure in the pelvis suggests fluid in the pelvic peritoneal cavity.

The picture is rather classical of a very large abdominal and peritoneal cavity abscess. It had a mottled appearance showing there was air in the structure. The location would make one think that it was about the region of the uterus. So the question was raised about whether this might be an abscess in the air-filled cavity of the uterus.

We did a barium enema on the patient with some trepidation. After giving the barium enema, a trickle of barium came out of the sigmoid into the region of the mass. We let the solution go on around to the cecum. The cecum was quite deformed. We didn't try to fill it out completely. We were rather impressed by the irregularity. It was my thought after seeing this that perhaps we were dealing with a large peri-appendiceal abscess in the pelvic or peritoneal cavity region.

Films of the chest showed no pathology.

Differential Diagnosis

Mr. Lawrence Lackey (Medical Student): This patient first had profuse uterine bleeding three times within a 30-day period. We have to think first of ectopic pregnancy, abortion, polypoid type of uterine fibroid, or maybe a placenta previa. I would eliminate all except ectopic pregnancy and abortion.

The scanty menstrual period in June might well occur in an abnormal pregnancy. Pain in the lower abdomen and constipation could indicate partial intestinal obstruction.

Obstruction in the bowel could result from partial volvulus. There is no history of vomiting. If complete obstruction were present, some vomiting would have occurred. Partial volvulus due to irritation or pressure symptoms may be due to ileus or some mass in the intestine preventing intestinal peristalsis. I agree the patient probably was pregnant at the time.

Thrombosis is an immediate thought suggested by the pain in the lower extremities. Obstruction of the common iliac veins could produce increased venous pressure and edema of the right leg. Of course a woman losing all this blood would probably be suffering from hypoprotenemia, and this would contribute to edema in the lower extremities. Pain could be simply the result of pressure. The



Figure 2. X-ray showing extrusion of the barium from the sigmoid into the abdominal abscess.

gas pains could be due to intestinal obstruction. The urinary frequency, dysuria, chills, and fever would cause us to think of urinary tract infection or possibly fibroids, giving these pressure symptoms and hydronephrosis.

In considering the growth palpated upon rectal examination, we think first of carcinoma of the rectum or colon. Second we think of invasion by ectopic endometrium. Twenty-five per cent of ectopic endometrium is found in the cul-de-sac and in many instances it does invade the colon. Sometimes there is a cystic and hemorrhagic type of ectopic endometrium. Hemorrhoids and syphilitic ulcers must also be considered with the positive serology.

A hyperactive bowel indicates partial obstruction. This cystic tender mass prior to admission would present the possibility of ovarian fibroid with probable cystic degeneration. A sarcomatous degeneration is less likely. The cervix indicates pregnancy because of its color and consistency. Regardless of where the pregnancy is, this is a hormonal reaction to pregnancy.

Ectopic pregnancy occurs in one out of 200 or 300 normal pregnancies, and tubal rupture or tubal abortion usually occurs. Tubal abortion is the less likely. Tubal rupture would produce much bleeding at one time. A tubal abortion when the fetus is extruded out the ostia can occur in steps. A partial implantation takes place step by step with part of the placenta retaining its implantation. The thick cauliflower mass noted on rectal examination seems larger than might be expected for endometrium. And yet implantation of the placenta in the cul-de-sac cannot be ruled out.

In performing the exploratory laparotomy and colostomy the surgeon must have found something irregular and wanted to get out in a hurry. There must have been a lot of pathology. She did go into a shock-like state. Following surgery, the borderline blood pressure of 80 systolic rose to 120. The hypotension together with the low blood volume in all probability produced renal damage. There was a decrease in urine output.

The cause of death was shock. The coma was a terminal event. Cerebral anoxia, from the low hemoglobin and hypotension, occurred. Bleeding probably came from the surgical incision. In this patient who for four months had been obviously suffering from hypoprotenemia, the fact still remains she was bleeding a lot. I don't think that her wound was healing very well. So there is a very good chance that she was bleeding and that the abdominal distention was due partially to bleeding in the abdomen. The high temperature suggests peritonitis or possibly rupture of the cyst or abscess.

This patient had an ectopic pregnancy, probably abdominal. I do not think it was a chorionepithelioma. I had to consider that, but I do not think that fits the picture. I think that death was due to hemorrhage and peritonitis.

Dr. Delp: Thank you. Does anyone else wish to make any comments? Dr. Critchfield saw this patient first.

Clinical Discussion

Dr. Thomas W. Critchfield (Obstetrics and Gynecology): The history of the unusual menstrual periods, the period of amenorrhea, the patulous cervix and the enlarged mass attached to the cervix suggested something in the genital tract. It was not necessarily a pregnancy but anything in the endocervical canal that would render the cervix soft and patulous. We frequently see a soft patulous cervix in the presence of endometrial carcinoma. We see those particular findings in pregnancies anywhere outside the uterus.

If this woman were pregnant, it would be at least three months along because she was amenorrheic. I think we should go back even further than that, if she was pregnant, because she was having very unusual irregular hemorrhagic menses for an additional two or three months prior to that time. I am doubtful that pregnancy would occur under those circumstances. If a pregnancy occurred, it probably antedated May, throwing it into a gestational period of at least five months. We would expect x-ray to show a fetal skeleton after five months. This was not seen.

Certainly the gastro-intestinal symptoms can't be explained solely by a hydatidiform mole. A hydatid mole that had undergone malignant change, a chorionepithelioma, might very well spread through the uterus, invading the bowel and giving the symptoms elicited. By the time chorionepithelioma had become extensive enough to give lower abdominal findings, we might well expect to find cannonball metastases in the chest. We did not. We doubted the presence of a chorionepithelioma.

I doubt the diagnosis of endometriosis. This woman had a full term normal delivery in January. The incidence of sterility or infertility within this length of time causes me to doubt seriously that her disease could now be that widespread. However, conception might have occurred within that short a period of time.

In general then, there is the possibility of a genital type lesion which has spread to and has involved the bowel. The patient is very young for a uterine carcinoma. Nonetheless, it is a possibility. Uterine carcinoma in this age group is rarer than the suggested abnormal pregnancy.

Two diagnostic possibilities remained. One was a

pelvic malignancy involving the bowel. The other was a pregnancy which I think would not be a tubal ectopic one because a tubal ectopic pregnancy usually does not go so long.

The patient should have had symptoms of a ruptured ectopic or secondary implantation long before her symptoms actually began. A tubal abortion would similarly have given symptoms. The possibility of an abdominal pregnancy warrants very real consideration. However, we did not see a fetal skeleton.

For the sake of completeness, an infected abortion with gas bacillus present must be mentioned. In the present case, however, we can account for the air on the basis of the perforation shown by the barium enema.

Dr. George Miles (Surgery): It was our impression that this patient had a pelvic abscess. We were interested in seeing this patient achieve good electrolyte balance and have blood replacement in order to allow surgical diversion of the intestinal tract and drainage of this abscess. That would be the management in this problem whether the pathology were due to ruptured diverticulitis, old peritoneal abscess with erosion into the rectum, or whether it were a bowel tumor or pelvic tumor.

My pre-operative diagnosis was probably ruptured diverticulum. I thought the patient probably had a granulomatous lesion of the bowel. She was losing blood rectally and we knew she had an abscess connection to the rectosigmoid bowel. I would favor an appendiceal abscess.

This woman did die of the cause indicated by Mr. Lackey. She bled profusely from the rectum postoperatively in spite of numerous blood transfusions.

Pathological Findings

Dr. Lauren Moriarty (Pathology Resident): The body appeared to be that of a rather well nourished colored female about 35 years of age. The abdomen was moderately distended. There was a double-barreled colostomy opening just above the umbilicus.

Opening the abdomen released an extremely foul odor. The upper abdomen showed little fluid but there was a fibrinopurulent exudate over the intestines and distention of the small bowel showing a rather typical ladder pattern. In the lower abdomen somewhat to the right of the mid-line was a bowl-shaped hematocele which apparently had been scooped out surgically. Close examination showed the presence of purulent material. The hematocele was bounded above and on either side by the latge bowel, the abscess containing such fibrinous material, and a considerable amount of thick purulent material.

The uterus was soft and enlarged to the size of about a three-month pregnancy. The cervix was patulous. When the uterus was opened it was empty. Lying to the right of the midline was a piece of tissue about 10 cm. long which appeared to be placental tissue. The tissue appeared necrotic. We were unable to identify the fallopian tubes or either ovary.

The pelvic organs were involved by an inflammatory process forming a conglomerate thick walled abscess containing a large mass of clotted blood with necrotic and purulent material.

The chest contents revealed nothing of much consequence.

Each of the kidneys showed a bilateral hydronephrosis which would just allow the insertion of the little finger into the pelvis of each of the kidneys. This was probably related to her recent pregnancy. The renal pelvis did not show evidence of chronic dilatation or infection. All of the organs were extremely flabby as one would expect from a very fulminating infection.

Dr. Harlan I. Firminger (Pathology): The material received in the pathology laboratory from the surgical procedure consisted of about a liter of bloody semi-gelatinous friable material in which were found a few macerated bones apparently from the fetus. Its skull was identified and the surgical pathologist stated he had identified a femur that was about two and one-half cm. in length.

Microscopically the surgical material revealed placental tissue with villi, a fibrinous membrane and decidual cells. The placental villi were covered by syncytial cells with some knotting compatible with a fetus of four and one-half to five months of age. There were no normal villi.

In sections from the autopsy material, remnants of placental tissue were found involved in a suppurative process composed largely of polymorphonuclear leukocytes though in other areas there were considerable numbers of chronic inflammatory cells. There was marked hemorrhage and a considerable amount of necrosis.

A section through the wall of the abscess adjacent to the rectum revealed the necrotic and fibrinous mass immediately adjacent to the rectum with inflammatory cells extending into the rectal wall. At autopsy we were unable to find the communication between the pelvic abscess and the rectum that was obviously present and demonstrated by x-ray.

The vessels in the abscess walls often showed degenerative changes characterized by eosinophilic swelling of the muscular layers. Several of the blood vessels contained thrombi of various ages. Some were recent and composed largely of red blood cells

still intact and fibrin. Others were largely fibrin with beginning organization and invasion by fibroblasts. One large vessel measuring one centimeter in diameter was almost completely occluded by an organizing thrombus. A number of large blood vessels, both veins and arteries, were caught in this necrotic process. The walls of the blood vessels showed marked degenerative change and sometimes necrosis. In one area there was a very large blood vessel which appeared to have ruptured due to a purulent inflammatory process involving its wall as a complication of the abscess.

This involvement of vessels by the inflammatory process was an adequate source of the tremendous bleeding that took place in this case.

A section of the endometrium showed almost no endometrial tissue left on the inner wall of the uterus. There was no decidual reaction which one might have expected earlier. It was probably lost soon after the death of the fetus, possibly about a month before death of the patient. There was no regeneration of the endometrium.

A section of the small bowel showed findings of a recent peritonitis which, I think, occurred postoperatively.

Clinico-Pathological Discussion

Dr. Firminger: One cannot say definitely from the gross findings whether this was a tubal pregnancy or whether it was abdominal. We are inclined to regard it as a tubal pregnancy because primary abdominal pregnancies are so rare. One tends to feel that primary abdominal pregnancies must be adequately proved to be accepted.

In the present case, the right fallopian tube and ovary were destroyed. The incidence of tubal pregnancies is given variously as one out of 300 to one out of 400 pregnancies.

On the other hand, this woman actually had a chronic salpingitis in her remaining tube. I suspect that if one calculated tubal pregnancies on the basis of chronic salpingitis it would be somewhat more frequent than this.

The course in cases of tubal pregnancy varies somewhat with the site of implantation. If it is at the isthmus, the tubal pregnancy is more likely to rupture. If it is in the ampulla one is more likely to get an internal rupture into the cavity of the embryonic sac which may or may not rupture externally and abort intraperitoneally.

Survival of the fetus is quite rare. Studies by Mall and von Winckle indicate that most of these are abnormal. In studies by Mall, he thought that 84 per cent of ova were abnormal. Some 16 per cent he regarded as normal. Von Winckle has done a study of some 87 cases in which the fetus had survived for some time. He found that 14 per cent of these were monsters. The percentage of monsters in normal pregnancies he found to be about one per cent.

In cases of external rupture, one has very marked symptoms of lancinating pain and exsanguinating hemorrhage, and the patient almost always requires some sort of surgery to prevent death from blood loss. In internal rupture with abortion, which I think this case may well have been, less pain occurs. However, one usually expects a little more dramatic symptoms than in the present case. Tubal abortion may have taken place rather slowly over a considerable period of time.

The fetus usually dies from inadequate placentation as happened in this case. Hemorrhage with pelvic hematocele formation occurs. Ordinarily the pelvic hemotocele will resorb. Sometimes mummified or calcified fetuses are found years later in the abdomen at autopsy. In a few instances, pelvic hematoceles become infected and form an abscess, particularly if there is adherence to the bowel as there was in this case.

If I may go back over the case and sum up what my impression of the course in this patient was, I would say that she had chronic salpingitis, therefore an increased risk of getting a tubal pregnancy.

I cannot say whether it was a primary abdominal pregnancy or not. I think that it was probably a secondary abdominal pregnancy. Pregnancy occurred before the history would indicate—that is before the cessation of the menses. It must have occurred in March or April according to the size of the fetus which corresponds to between four and one-half and five months gestation. Her periods we know were abnormal in May. She probably had disturbance before that. She had constipation and swelling of her legs coming on in June which might well have been due to partial obstruction of the bowel and venous obstruction of the leg due to this swelling mass or irritation. Her pain might have been due to intra-abdominal spillage of blood from this type of pregnancy. The obstruction became more obvious later. About four weeks before admission, she had a more dramatic episode. At that time I would assume that she must have had the tubal abortion with more spillage of blood into the peritoneum. The fetus probably died about that time. Often that is the reason for the abortion as well as for the hemorrhage. She probably shed the uterine decidua in small pieces rather than as a cast, but we do not have any information on this.

Very soon after this, the pelvic hematocele and necrotic tissue became infected by an organism which I would like to believe is the paracolon organism isolated from both the stools and the blood. A gas former, it can account for the gas which was

present before the barium enema was done. We cannot say that the gas did not come through the fistula connecting the abscess with the rectum.

The rectal bleeding quite obviously came from this huge hematocele in the pelvis going out through the communication to the rectum. It was dark blood. I assume it was somewhat changed blood and later it could have been fresher due to more recent hemorrhage from the large necrotic blood vessels in the area and actual hemorrhage. At surgery the abscess was opened and scooped out. The inflammatory process which had been previously somewhat confined was released into the abdomen. The patient developed a generalized peritonitis and died.

Autopsy Diagnosis

Primary

Ectopic pregnancy (four to five months), probably tubal, with rupture and tubal abortion.

Pelvic hematocele with secondary abscess formation.

(Perforation of abscess into rectosigmoid).

Healing colostomy wound, recent (history of colostomy).

Rupture of pelvic abscess (history of surgical evacuation).

Generalized peritonitis.

Pulmonary congestion and edema, slight.

Chronic salpingitis, left.

Accessory

Atheromatosis, aorta and coronary arteries, slight.

Hydronephrosis, bilateral, slight.

Bibliography

Mall, F. P.: The Cause of Tubal Pregnancy and the Fate of the Enclosed Ovum, S.G.O. 21, 289-298, 1915.

New Edition of Merck Index

A new edition of the Merck Index, an Encyclopedia of Chemicals and Drugs, will be published this month by Merck and Company, Inc., Rahway, New Jersey. It will contain 1,167 pages of text covering more than 8,000 descriptions of individual substances, more than 2,000 structural formulas, and about 20,000 names of chemicals and drugs alphabetically arranged and cross-indexed. Copies may be obtained from the Publications Department of the company.

New features of the edition include a table of standard buffers for calibrating pH measurements, a table of radioactive isotopes giving their half lives and type of radiation, and a table of current medical uses for radioactive elements and compounds.

The Fourth Annual Mid-West Cancer Conference will be held at the Broadview Hotel, Wichita, April 3 and 4, 1952. Make hotel reservations now.

Nominating Committee

According to the Constitution and By-Laws the nominating committee, consisting of five past presidents elected by the House of Delegates, shall nominate two or more candidates for each elective position not less than 90 days prior to the annual meeting.

The current nominating committee is Dr. Haddon Peck, chairman, Dr. O. W. Davidson, Dr. J. L. Lattimore, Dr. L. S. Nelson and Dr. H. N. Tihen. They met at Kansas City, Kansas, on Wednesday, January 23, 1952, and report the following slate for consideration by the Society.

It should be noted that further nominations will be called for from the floor, permitting the entry of as many additional names as may be desired. At the request of two members on the nominating committee whose names appear as candidates, it should be explained that all present officers were re-nominated and that this was the first action taken by the committee with the two persons involved abstaining from such vote.

It should be noted that the president-elect and first vice president incumbents are moved forward one place from the positions held this year. The incumbent is named first except for the position of second vice president where there is no incumbent, and there the names appear in alphabetical order.

Candidates for 1952

President-elect	L. R. Pyle, M.D., Topeka P. W. Morgan, M.D., Emporia
First vice president	M. C. Eddy, M.D., Hays J. G. Hughbanks, M.D., Independence
Second vice president	H. H. Jones, Sr., M.D., Winfield J. M. Porter, M.D., Concordia
Constitutional secretary	D. D. Vermillion, M.D., Goodland J. D. Colt, Jr., M.D., Manhattan
Treasurer	J. L. Lattimore, M.D., Topeka Dwight Lawson, M.D., Topeka
A.M.A. Delegate (term of 1953-1954)	L. S. Nelson, M.D., Salina T. P. Butcher, M.D., Emporia
A.M.A. Alternate Delegate (term of 1953-1954)	G. F. Gsell, M.D., Wichita C. V. Black, M.D., Pratt

The personal attitudes of the patient are important in the treatment of any disease in which the patient's cooperation must be elicited. The more chronic the illness, the greater importance these personal factors assume. Osler summed up the situation in tuberculosis when he said, "It is just as important to know what is in a man's head as what is in his chest if you want to predict the outcome of his pulmonary tuberculosis."—*Jerome Hartz, M.D., Pub. Health Reports, October 6, 1950.*

BLUE SHIELD

Blue Shield's Physician Relations Program

The following are excerpts from a report made by the Blue Shield Professional Relations Staff to the Blue Shield Board meeting January 20. Since it contains both a summary and plans for 1952 it is thought that it might be useful to publish it in the Journal.

Purpose

The purpose of our Physician Relations program is to win and maintain the cooperation of the participating physicians. The minimum cooperation on the part of the participating physician would consist of carrying out the provisions of the Blue Shield contract. However, our program in Kansas has been conceived along the lines of winning maximum cooperation. In addition to carrying out the contract in spirit as well as in letter, we are hopeful that our participating physicians will cooperate also in the following areas:

1. Public relations
2. Enrollment
3. In the solution of Blue Cross problems
4. Participate in the development of new ideas for better contracts in the future

Where We Stand Now

We believe we can report that the overwhelming majority of participating physicians accept and carry out the terms of the Blue Shield agreement. This acceptance refers to handling of cases, accurately reporting services, not overcharging the service-income patients and generally good performance in delivering the services of the contract.

There is little evidence of any wide-spread complaint among our participating physicians. Of course, individual cases arise which are sometimes difficult to handle and require correspondence with doctors. But satisfactory machinery exists for orderly handling of most of these difficult cases.

Plans for 1952

Economy Program

Due to the sharply rising cost of hospital service our contacts with physicians in 1952 will emphasize the need for the most careful economy in the utilization of Blue Cross as well as Blue Shield services.

Doctors generally point out that patients are pressing for greater use of the services. However, most of the physicians with whom we have talked agree that the doctor has the greatest influence over use of the services. Thus, if we are to effect economy, it must be done primarily through the good will and cooperation of physicians. Our Physician Relations staff has already talked to more than 200 doctors on the economy program during the 1951 fall season. Efforts are being made to meet with county societies and medical staffs to the end that another 800 doctors will be reached with a personal message on economy between now and the annual meeting on April 27.

Fee Committee Studies

It is most important that the Fee Committee of the Kansas Medical Society continue actively to study the relationship in fees. The development of an equitable Blue Shield payment schedule is the core of a good physician relations program. However, such a development does not come overnight or through a few meetings. It should be the purpose of the Fee Committee to suggest lines of study, statistical data and methods of thinking about fees which will lead toward a continuous study of this problem and which should more nearly produce an equitable schedule.

Specialty Groups

Our relations program should set up a definite plan for communicating with our specialty groups within the profession. We have followed this practice during the times of the annual meeting of the Society. But it must be set up on a planned basis. Whenever we find a group of physicians organized in a specialty we should have a definite plan of communication with that group.

Meetings with Medical Assistants and Auxiliaries

The Kansas Medical Assistants' Society has cooperated in the interpretation of Blue Shield services to both patients and the public and has assisted in enrollment. Blue Shield has set up meetings for them, inviting medical assistants from surrounding counties, sometimes just prior to community enrollment drives. Margaret Foster has attended all their state meetings and has spoken to other groups on invitation. A future program of continued cooperation is planned.

The Woman's Auxiliary to the Kansas Medical Society offers an opportunity for meeting with an entirely different group. This project has not been developed very extensively, but it is hoped that an expanded program of meetings with local groups of this organization may be possible.

Public Relations

1952 will be the 10th anniversary year of Blue Cross in Kansas. Our public relations program is being built somewhat around the theme "Ten Years of Service." This theme will lend itself to appropriate inclusion of Blue Shield in all of our public relations activities. A stepped-up advertising program is being planned. Heretofore all of our advertising has been built solely around the good points of our own program. The emphasis in the future will tend toward demonstrating the key dif-

ferences and advantages of Blue Cross-Blue Shield over other forms of protection. We find that people have very little understanding of the real hazards of hospital costs today. Thus, there is a tendency for many people to feel satisfied with low benefit commercial programs. It remains for us to improve the understanding of the public on this problem so that the public will become selective in its purchase of hospital and medical protection. When the public is informed we believe it will select Blue Cross-Blue Shield.

ACTIVITIES OF MEMBERS

Dr. D. O. Howard, Wichita, addressed a recent meeting of social workers in the Sedgwick County area.

* * *

Dr. Saul Zizmor, Chetopa, announced the opening of an office in Oswego on January 2.

* * *

Dr. Paul E. Koerber was named "man of the year" in a contest in Russell County sponsored by the Russell Junior Chamber of Commerce. The honor was given for "his devotion to his profession, his aid for the needy and aged, and his humanitarian acts during a lifetime of service devoted to helping others."

* * *

Dr. Edward Greenwood of the Menninger Foundation, Topeka, was speaker at a meeting of the Highland Park P.T.A. held January 10. His subject was "Problems of Children."

* * *

Dr. Thomas L. Foster, Halstead, was guest speaker at an inter-state meeting of Alcoholics Anonymous held at Coffeyville last month. He showed a mental health film and discussed alcoholism from the viewpoint of the psychiatrist.

* * *

Dr. R. W. Urie, Parsons, has been notified of his election to the Radiological Society of North America.

* * *

Dr. Dale Palmer, Wichita, was guest speaker at last month's meeting of the Sedgwick County Chapter of Licensed Practical Nurses.

* * *

Dr. Harold H. Jones, Winfield, was guest speaker at a meeting held at St. Timothy's Church, Iola, on January 25. His subject was "Multiple Sclerosis."

* * *

Dr. George F. Corrigan, Wichita, has been named chairman of a committee to plan the observance of the Sedgwick County Medical Society's 50th birthday in 1953.

Captain Lewis N. Bass, Pittsburg, now stationed at an Army hospital in Japan, was recently awarded the Bronze Star Medal for outstanding service as a surgeon in Korea. The citation reads in part: "As a battalion surgeon with the 8th Regiment, 1st Cavalry Division, Captain Bass performed his duties in a conscientious and outstanding manner. Responsible for treatment of all illnesses, injuries and wounds of battalion personnel, he worked tirelessly to accomplish all tasks with the utmost efficiency. Captain Bass' meritorious achievement reflects great credit on himself and the military service."

* * *

Dr. Henry S. Blake, Jr., Topeka, has been named chairman of the Public Health and Welfare Committee of the Topeka Chamber of Commerce.

* * *

Dr. James E. Bresette, who recently completed a fellowship in ophthalmology at the Mayo Clinic, has opened an office in Kansas City for practice limited to ophthalmology.

* * *

Dr. Robert E. Stowell, professor of oncology at the University of Kansas School of Medicine, was speaker at a meeting of the staff of the V.A. Hospital, Wichita, January 16. His subject was "Serodiagnostic Tests for Cancer."

* * *

Dr. Clyde W. Miller, Wichita, addressed the Sedgwick County Medical Assistants' Society on the subject of public relations at a meeting held January 16.

* * *

Dr. Robert F. Freeman, Nortonville, has entered the Menninger School of Psychiatry, Topeka.

* * *

Dr. Franklin D. Murphy, chancellor of the University of Kansas, was one of the speakers at the 48th Congress on Medical Education and Licensure held in Chicago, February 10-12.

* * *

Dr. L. V. Kaufman, formerly of Wichita, is now practicing in Freeman, South Dakota.

* * *

Dr. Vernon E. Filley, formerly of Dodge City, is now associated with Dr. John R. Campbell in the Pratt Clinic.

* * *

Dr. Lewis L. Robbins of the Menninger Foundation, Topeka, was guest speaker at a tea given by the Woman's Auxiliary to the Shawnee County Medical Society at Benton Hall, Topeka, on February 4. His subject was "Common Questions about Psychiatry."

* * *

Dr. Louis S. Morgan, Wichita psychiatrist, addressed a meeting of the Registered Nurses' Study Club in Arkansas City on January 17.

COUNTY SOCIETIES

A meeting of the Rice County Society was held at Lyons in December and the following officers were elected for 1952: Dr. A. F. Schmidt, Little River, president; Dr. Jack C. Dysart, Sterling, vice president; Dr. E. R. Hill, Lyons, secretary-treasurer. Dr. John B. Jarrott, Hutchinson, was speaker at the meeting.

* * *

Dr. R. R. Melton was elected president of the Marion County Society for 1952 at a meeting held recently. Dr. T. C. Ensey was named vice president and Dr. C. R. Magee, secretary.

* * *

The Wyandotte County Society met at the City-County Health Building, Kansas City, January 15. Dr. Charles Crockett spoke on "Management of Minor Eye Injuries from the Standpoint of the General Practitioner," with a discussion by Dr. F. Bosilevac. Dr. Michael Ryan presented a paper on "Headaches" and Dr. W. H. Algie gave the discussion.

* * *

Members of the Shawnee County Society entertained the Golden Belt Medical Society at the Hotel Kansan, Topeka, on January 10. Dr. W. T. Sirridge, Kansas City, spoke on "Contraindications and Complications of the Use of ACTH and Cortisone," Dr. G. L. Norris, Winfield, presented a paper on "Treatment of Congestive Failure," and Dr. Frank Hoecker, Lawrence, discussed "Clinical Applications of Radioactive Isotopes." The afternoon scientific program was followed by dinner and a business session.

* * *

Dr. Bruce P. Meeker was installed as president of the Sedgwick County Society at a meeting held on January 8. Other officers of the group are: Dr. L. K. Nix, vice president; Dr. W. H. Fritzemeier, secretary; Dr. E. S. Brinton, treasurer. Speaker at the meeting was Dr. James J. Waring, of the University of Colorado, Denver, whose subject was "Pleural Effusion, Diagnosis and Treatment."

* * *

Officers of the Miami County Society for 1952 are: president, Dr. W. L. Speer, Osawatomie, and secretary, Dr. William Brown, Paola.

* * *

Members of the dental and pharmaceutical professions were guests of the Rush-Ness Medical Society at a meeting held at the Rush County Memorial Hospital, January 3. "The Cancer Problem" was the subject for discussion, and two physicians from Hays, Dr. A. M. Cherner, radiologist, and Dr. T. Flanders, internist, were speakers.

The Mid-west Kansas Medical Society met in Larned, January 17. Dr. Harold O'Donnell of Wichita presented a paper, "The Treatment of Hydronephrosis." The following officers were elected: president, Dr. John Blank, Hutchinson; vice president, Dr. F. A. Thorpe, Pratt; secretary-treasurer, Dr. O. R. Cram, Larned. Thirty-eight physicians were present.

* * *

A meeting of the Cloud County Society was held January 15, and the following officers were elected: president, Dr. L. E. Filkin; vice president, Dr. F. B. Emery; secretary-treasurer, Dr. M. D. McComas, Jr. They will hold the same offices on the staff of St. Joseph's Hospital, Concordia.

* * *

Dr. Dale Smith, Fredonia, was elected president of the Wilson County Society at a meeting held at Fredonia, January 17. Dr. Raymond Beal, Fredonia, was named vice president, and Dr. C. E. Stevenson, Neodesha, was re-elected secretary-treasurer. A guest at the meeting was Mr. Oliver E. Ebel, executive secretary of the Kansas Medical Society, who later addressed a meeting of the Parent-Teacher Association at which members of the Auxiliary were present.

* * *

Fifty members of the Cowley County Medical Society and Auxiliary were present at a post-holiday dinner meeting held at the Esquire Club, Arkansas City, January 17.

* * *

A meeting of the Sedgwick County Society was held at the Allis Hotel, Wichita, on February 5. Speaker of the evening was Dr. Charles M. Wilhelmj, professor of physiology, Creighton University, Omaha. His subject was "Gastric Secretion in Relation to Peptic Ulcer Disease."

* * *

The January meeting of the Reno County Society was held at Grace Hospital, Hutchinson. Dr. John N. Blank was elected president; Dr. Victor R. Moorman, vice president; Dr. William E. Brownlee, secretary-treasurer. The "doctor of the year" for the group is Dr. Leo O. Forney, who has practiced in Hutchinson for 46 years.

Licenses to 52

Licenses to practice in Kansas were issued recently by the Kansas State Board of Medical Registration and Examination to 52 physicians, five by examination and 47 by endorsement.

Those who passed the examination and their intended locations are: William Edward Burger, Kansas City; Raymond Orville Keltner, Hoisington; George Thomas Prlain, undecided; George Wheeler

Roark, Jr., Topeka; Johann Otto Schnitzer, Wichita.

Physicians licensed by endorsement and their present or intended residences are: Marian Barnes, Osawatomie; Carroll Behrhorst, Winfield; Hansel Benvenuti, Wichita; Henry Stevens Blesse, Leavenworth; Charles E. Brackett, Jr., New York; Allan King Briney, Topeka; William Dimmock Buxton, Topeka; Iverson Clark Case, Jr., Topeka; Robert Arthur Chapman, Oak Park, Illinois; Flora Finch Cherry, Olathe; Francis G. Connor, Concordia; Arthur Franz Dundon, Sr., Topeka; Harlan Irwin Firminger, Kansas City; Seymour Warren Friedman, Topeka; Robert Edward Grene, Warren, Arkansas; Ralston R. Hannas, Jr., Kansas City; Otto Lyman Hanson, Topeka; Ballard Hayworth, Topeka; Lorman Leon Hoopes, Washington, D. C.; Millard Leston Hoyt, Topeka.

Laurence Lewis Jones, Wichita; Samuel Kantor, Kansas City, Missouri; John Richard Kline, Wichita; Harry Lazar, Wichita; Alexander Lichtor, Kansas City, Missouri; Vernon Miller Lockard, Bartlesville, Oklahoma; Robert Rider Luttrell, Topeka; Stuart Johnson McWhorter, Osawatomie; Cecil Arden Miller, Kansas City; Alexander Howard Milne, Topeka; Waitstill A. Nickell, Osborne; Wendell Kay Nickell, Osborne; Talmage Whiting Nielsen, Winfield; Robert Lyle Obourn, Eureka; Warren Schrader Peiper, Arkansas City; Thomas P. E. Rothchild, Wichita.

Newton Converse Smith, Arkansas City; Vernon Andrew Stehman, Topeka; Leland Douglas Stoddard, Kansas City; Prescott W. Thompson, Topeka; Frank Henry Thone, Wichita; Ignatius James Tikellis, Sunflower; Maurice Sanford Wessell, Hiawatha; Horace Mann Wiley, Jefferson City, Missouri; Howard Vivian Williams, Jr., Topeka; Granville M. Winship, Topeka; James Elgin Young, Jr., Kansas City.

DEATH NOTICES

John Alvin Mahre, M.D.

Dr. John A. Mahre, 28, who formerly practiced in Plainville and Victoria, died December 20 in St. Louis, where he was taking a postgraduate course in internal medicine. He was graduated from the University of Wisconsin Medical School in 1947. He was a member of the Central Kansas Medical Society.

* * *

Alva E. Billings, M.D.

Dr. A. E. Billings, 72, a retired Topeka physician, died January 16 at the Knoxville, Iowa, Veterans Hospital. After his graduation from University College of Medicine, Kansas City, in 1909, he began practice in Topeka, leaving only during World War I when he served in the Army medical corps. He was an honorary member of the Shawnee County Medical Society.

* * *

Francis A. Carmichael, M.D.

Dr. Francis A. Carmichael, Sr., 80, who served as president of the Kansas Medical Society during the 1925 to 1926 year, died January 21 in Kansas City, Missouri, after a year's illness. He was also a past president of the Kansas-Missouri Neurological Association and was well known in psychiatric fields, having served as superintendent of the Osawatomie State Hospital and of the St. Joseph, Missouri, State Hospital. He began private practice in Goodland in 1904, after his graduation from Northwestern University School of Medicine, and continued in practice there until he was appointed to the Osawatomie hospital in 1913. He became consultant to the Missouri Eleemosynary Board in 1936 and went to the St. Joseph institution in 1941.

* * *

Charles Warner Jones, M.D.

Dr. C. W. Jones, 76, an active member of the Johnson County Society and a past president of that group, died at his home in Olathe, January 28. He had practiced in Olathe from 1910 until his retirement two years ago. He was graduated from Keokuk Medical College in 1896 and practiced in Iowa until he enlisted for service in the Spanish-American War, after which he practiced for a short time in Kansas City and Lenexa before opening his office in Olathe. He served also in World War I and was stationed in France for 14 months.

Dr. Jones was a civic leader in Johnson County and served as coroner in the early 1940's. For three years he was president of the Kansas State Board of Medical Registration and Examination and for 11 years he served as a member of the board. He was the first commander of the Olathe post of the American Legion, and twice was elected commander of the second district of the Legion. Last month the Olathe Rotary Club, of which he was the second president, created a fund in his honor for the establishment of a hospital in that city.

A brother, Dr. Harold H. Jones, Sr., Winfield, is among the survivors.

Senior Thesis from the University of Kansas Medical School*

Nervous System Dysfunction in Liver Disease

Dorothy Danna, M.D.**
Chicago, Illinois

It is intriguing that the pathogenesis of central nervous system dysfunction in liver disease is as yet unknown. As more accurate reports of clinical studies are made it is becoming more evident that the brain is involved in many kinds of liver disease.

Hepatic coma as a terminal event in liver disease has been described for centuries. Many clinicians daily make the diagnosis of hepatic insufficiency when the presenting complaint of the patient may be purely nervous in character. The realization that such diverse diseases as hemochromatosis, the lipoidoses, Wilson's disease, and kernicterus all have a common background of diffuse liver disease combined with brain lesions is common knowledge. During the second World War, well-documented studies of the epidemics of infectious hepatitis furnished many cases in which nervous symptoms were a prominent feature and a few cases with residual lesions of the nervous system. The so-called "liver death" postoperatively has been written about extensively, and yet no one to date has managed to furnish evidence of its etiology.

The purpose of this paper is to review a few of the many hundreds of articles to be found in the literature concerning this problem, and to present the hypotheses that have been offered.

Hepatic Coma

The ancients were aware of the serious prognosis in an individual with liver disease when drowsiness and stupor appeared. Morgnani described hepatic coma in his letters. However, it was not until the latter half of the 19th century that attempts to ascertain the cause of this coma were made. Frerichs[1] described mental changes in patients with acute yellow atrophy and with cirrhosis of the liver . . . "Cases have occurred to me in which individuals who for a long period have suffered from cirrhosis of the liver, have suddenly presented a series of morbid symptoms foreign to that disease. They have become unconscious, and have been afterwards seized with noisy delirium, from which they have passed to deep coma and in this state have died. In most cases, slight jaundice made its appearance at the same time . . .

"There are other morbid conditions, which, if they lead to complete disorganization of the liver and to an arrest of its functions, give rise to dangerous nervous symptoms, delirious coma and convulsions . . . "

As he states, he felt that these symptoms were due to hepatic insufficiency with a decreased output of bile and therefore named the condition "acholia."

Flint[2] thought cholesterol was the toxic agent and called the condition "cholesteremia."

Leyden in 1866 was struck with the clinical resemblance of liver coma to kidney failure. He attributed the coma to retention of bile acids in the blood and named it "cholemia" in analogy to uremia.

Crofton[3] advanced the theory that there must be an intoxicating factor involved and attributed the source of poison in the overwhelming majority of the cases to the gastrointestinal tract. He felt that therapy should be directed toward regulating the diet to eliminate poison and toward the prevention of absorption of the poison. This theory is still held by some observers today.

Quincke and Hopp-Seyler (1899) called it "heptargia"—liver inactivity.

Spence and Ogilvie[4] did a careful study of 21 cases of liver atrophy which evidenced nervous system symptoms and signs. Five of their cases were children of 14 years or younger. These cases showed very similar progression of symptoms: first lethargy or stupor, then a period of unusual shrieking and crying, followed by a convulsive stage, and terminally death in coma. They felt that the children evidenced much more violent signs than adults and were particularly impressed with the peculiar type of maniacal shrieking and wailing seen in some of the children. They felt it was so distinct that they named it the "cholemic cry." In their series, the relationship between the appearance of nervous system symptoms and the appearance of jaundice was not constant. Some patients had symptoms of nervous system dysfunction from four to six days without jaundice, the latter appearing only in the last 24 hours. Three of their cases showed extensor plantar reflexes. Positive Babinski reflexes in liver disease had first been reported by Rolleston in 1912 in cases of acute yellow atrophy. Willcox (1919) and Elliott and Walsche (1925) had discussed their presence in the terminal stages of infective jaundice and cirrhosis.

Spence and Ogilvie offered the theory that these symptoms of nervous system dysfunction were caused by an autolytic poison from the liver itself.

*This is one of 11 senior theses selected for publication by the Editorial Board from a group of 15 judged the best by the faculty of the University of Kansas School of Medicine.

**Thesis written while the author was a senior student at the University of Kansas School of Medicine. Dr. Danna is now serving her internship at Michael Reese Hospital, Chicago, Illinois.

As the 20th century progressed, attention shifted from the naming of the syndrome to studies of its biochemistry and its pathological anatomy. As it proved almost impossible to demonstrate the retention of bile to be the causative factor, the term cholemia was dropped.

Experiments of Balo and Korpassy[5] showed that when dogs with Ecks fistula were fed meat, six of eight animals presented symptoms of encephalitis. In the brains of three dogs, histologic changes were found which corresponded to non-suppurative encephalitis—located particularly in the striate body. These lesions were of similar kind, but of a greater degree, than those found in hepatitis. They concluded that the encephalitis in their experimental animals was due to intoxication caused by the exclusion of the liver. In such animals and in hepectatomized animals glucose reverses the process for some hours, but glucose given to humans in coma has proved to be of little true therapeutic value clinically.

Greene,[6] reviewing the literature in 1941, reported that hepatic coma was seen in acute yellow atrophy of the liver, fatal Weil's disease, toxic jaundice caused by the administration of arsphenamine, poisoning by carbon tetrachloride, toxic hepatitis from eclampsia, in both portal and obstructive cirrhosis, in extensive carcinomatous destruction of the liver (primary and secondary) and as a sequela of operations on the gallbladder or the biliary tract; coma can develop either with or without jaundice or ascites and bears no relation to the degree of biliary obstruction.

In his study of the problem, he was unable to demonstrate a consistent change in the chemical composition of the blood although in individual cases there were at times such changes. He showed that there was no retention of bile as there was no increase in bile acids in the blood; neither did the clinical picture bear any relation to either cholesterol or bilirubin in the serum. In acute diseases, such as acute yellow atrophy, there was some increase in the amino acids, but not in slower disease processes. The blood urea was elevated only when there was associated a renal insufficiency. Hypoglycemia was infrequent. Hypoprothrombinemia was often present, especially when hemorrhagic tendencies were seen clinically, but did not always appear in cases where coma occurred. His belief was that coma was due to hepatic insufficiency, that there was no specific hepatic toxic agent. The multiplicity of the functions of the liver and its essential nature as the chief storehouse and chemical factory of the body were to his mind so vital to the body economy that the failure of its activities would explain the inability of the organism to maintain life.

Snell and Butt[7] did intensive studies on eight patients, six of whom had atrophic cirrhosis, particularly on the basis of alcoholism. They were unable to demonstrate failure of deaminization on the part of the liver in these patients as all urea nitrogens remained within normal limits. They felt that chemical blood changes do not explain the neurological features of coma; further, the organic lesions in the liver were no different in those cases in which coma developed than in those in which it did not. They used intensive nicotinic acid, thiamine and glucose therapy parenterally and felt that their results were good—six of the eight patients responding in a satisfactory manner to this therapy. None of the survivors presented any evidence to suggest permanent organic lesions of the brain or cord. However, the value of this therapy is still questioned by many clinicians.

Lynch[8] and his associates studied 40 patients with severe primary liver disease in whom coma, occurring after a variable period of decreasing alertness and lasting from 12 hours to six days, was the outstanding feature. In their series deep coma occurring spontaneously was invariably fatal. They made a point of discussing how difficult it is to sedate patients with liver disease as they felt the injudicious use of barbiturates and morphine had led some of their patients into coma unnecessarily and that reversing the process was as difficult in these cases as it was in spontaneous coma.

They described their patients as looking as if they were sleeping, making no purposeful voluntary movements and responding less and less to painful stimuli. The signs of liver disease remained essentially unchanged except for the appearance of clinical jaundice in four patients previously not jaundiced. Six were not jaundiced at death. Temperature, pulse and respiratory rate gradually rose during the coma; the blood pressure, which was usually normal or slightly low before the onset of coma, fell during the coma. Extensive laboratory work was done on these patients. The total white cell count usually rose terminally; the average count was 10-20,000. The plasma carbon dioxide combining power was usually moderately reduced, but in two patients showed high values. No low blood sugar values were found. No consistent or striking changes were found in liver function tests—serum bilirubin, thymol turbidity, cephalin-cholesterol flocculation and plasma prothrombin concentration. The urine urobilinogen was extremely variable. Spinal fluids were generally negative. Their treatment was a high protein high calorie diet, supplemented with brewer's yeast, oral niacin and subcutaneous thiamine. They were unable to reproduce Snell and Butt's results.

They found that infection was the single most

common known factor in precipitation of coma in their series. The nature of the influence of infection upon metabolic processes in the liver is unknown. Fever itself may cause hepatic necrosis, which is evidenced clinically by jaundice and bromsulfalein retention. Jaundice occurs in a small percentage of patients with pneumococcal pneumonia, especially in the presence of an added septicemia, probably due to liver damage.

Experimental work by Beeson demonstrated that hepatic vein blood in cases of endocarditis contains strikingly fewer bacteria than either peripheral venous or arterial blood and suggested that the liver may be the major site of removal of circulating bacteria from the blood. Profound circulatory changes occurring with infections and fever may diminish the oxygen supply to the liver. Acute blood loss shows greater reduction in the portal blood flow than is suggested by changes in the systemic blood pressures. Oxygen content of the portal blood is markedly decreased. Since the liver receives from 75 to 80 per cent of its blood from the portal system, marked hepatic anoxia might be expected from severe hemorrhage and severe depletion of adenosine di-phosphate and tri-phosphate would occur.

In this connection, liver deaths associated with hyperpyrexia and coma postoperatively might be mentioned. Heyd[9] is of the opinion that the process has its origin in the degeneration of individual liver cells. If the process is acute and fulminating, there is a very early death with hyperpyrexia and coma. If it is less severe and the elaboration of the hepatic toxins is less rapid, the patient survives until the secondary effects of this toxin are manifest in destruction of renal parenchyma with the clinical picture of oliguria progressing to anuria. Hence the associated mechanism of liver-renal damage—the hepaticorenal syndrome.

Goldbloom[10] and his associates, working on the theory of reducing autointoxication by intestinal sterilization, treated 14 patients with liver disease, eight of whom were stuporous and two comatose, with intravenous aureomycin (500 mgm. b.i.d.). Eight improved markedly, two slightly and four died. Improvement occurred within 24 hours of the start of the treatment with clearing of the sensorium and a feeling of well-being and improved appetite.

Hepatic Insufficiency

Hepatic insufficiency per se is often difficult to diagnose. Liver function tests are notoriously inadequate until a severe degree of liver damage is present. Often patients present themselves with symptoms resembling a chronic exhaustive state or asthenia so that a diagnosis of psychoneurosis is made.[11] A toxic psychosis on a nutritional basis may occur without any physical signs of vitamin deficiency. Nicotinamide therapy has proved valuable in such cases. Hepatic insufficiency in mental patients may aggravate their symptoms and they may improve with such therapy.

Watson[12] defines hepatic insufficiency as that state in which the patient's normal economy and activity is seriously interfered with because of a diffuse hepatic injury. In an autopsy done on a case of necrosis of the liver, the brain showed areas of perivascular demyelinization and endothelial proliferation, similar to findings in patients dying in hepatic coma, and he thought the condition should be termed "hepatic encephalopathy."

Infectious Hepatitis

Blumer,[13] in a survey of all the epidemics of infectious hepatitis in the United States from 1812 to 1920, revealed no unusual nervous system involvement. Willcox[14] specifically mentions the rarity of alteration in the function of the nervous system in infectious hepatitis and reported that special nervous symptoms other than asthenia and depression did not occur in the ordinary type of case.

Lucke,[15] in a monumental study of 125 cases occurring in the armed forces during the Second World War, found that in 73 cases a sudden dramatic change for the worse ushered in the terminal phase. The characteristic changes were nervous symptoms, ascites and persistent vomiting. In over 60 per cent of the cases, death occurred within 10 days from the appearance of grave symptoms. Only three patients survived longer than 20 days. In the great majority of the cases, the patients had signs of cerebral involvement. Particularly noteworthy were lethargy or coma, alternating with restlessness, excitement and delirium. Other manifestations were scanning speech, muscular weakness, and exaggeration of deep and superficial reflexes. Nervous manifestations usually marked the turning point; in a few cases these were earlier in appearance or else were agonal.

Lucke's observations showed that mental and nervous manifestations were almost invariably present during the final phase of fatal hepatitis. He felt that these changes were somewhat similar to those found in hepectatomized animals. In animals, however, the symptoms produced and the death of the animal are due chiefly to hypoglycemia. He assumed that it is the general imbalance of tissue fluids rather than the disturbance of a single component such as sugar which is responsible in humans for the cerebral manifestations and death.

"The anatomic background of the cerebral symptoms is ill-defined. In this series two main kinds of changes were found on microscopic examination.



now in parenteral form...

BANTHĪNE®

Bromide

Brand of Methantheline Bromide

for use when oral administration is difficult or impractical —when more prompt action is desired

Banthine—a true anticholinergic drug with an adequate range of safety—is now made available to the medical profession in parenteral form, for use intravenously or intramuscularly in those conditions characterized by nausea and vomiting, when oral medication cannot be retained and when a prompt action is desirable.

Through its anticholinergic effects, Banthine inhibits excess vagal stimulation and controls hypermotility.

In Peptic Ulcer —the value of the oral form of Banthine is now well established. However, edema in the ulcer area may indicate parenteral Banthine until the healing processes have reduced the edema.

In Pancreatitis —it has been found that parenteral Banthine relieves pain, effects a fall in blood amylase and produces a general improvement in the patient's condition.

In Visceral Spasm —it inhibits motility of the gastrointestinal and urinary tracts.

Parenteral BANTHĪNE is supplied in serum-type ampuls containing 50 mg. of Banthine powder. Adult dosage is generally the same as with Banthine tablets.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

RESEARCH IN THE SERVICE OF MEDICINE **SEARLE**

One was acute non-specific degeneration of ganglion cells, such as accompanies many different diseases. These changes occurred in all cases. The other was a mild form of meningo-encephalitis located particularly in the brain stem, including the hypothalamus, the periventricular system and the nucleus basalis; the cortex and the subjacent white matter remained untouched. These changes occurred in approximately 15 per cent of all the brains.

"The lesions are different from those found in virus diseases, such as measles, mumps or vaccinia. In these, foci of demyelination and often necrosis of small arteries are characteristic; such alterations are not found in cases of hepatitis . . .

"We may now consider whether the changes in the brain may result from toxic substances passing through the damaged liver. The portal blood always contains an abundance of toxic products of digestion which in the normal liver are detoxified . . . It seems probable that in fatal hepatitis the detoxifying function of the liver is so altered as to permit the circulation of substances normally bound or destroyed in this organ. The working hypothesis is proposed that the cerebral changes of hepatitis result chiefly from the loss of the detoxifying function of the liver."

Stokes and Holmes,[16] reporting on an epidemic of infective hepatitis in Assam and Bengal in 1944, divided the neurological findings into four groups. First, the picture commonly found in the fatal case: there was but short time elapsing between the first onset of mental change and death. Some degree of mental depression was found to be very common in all cases. Any increase in the depression or any behavior change was treated as a danger sign and as an indication for protective therapy.

The second group presented a symptom-complex comprising generalized or localized muscular rigidity with increased tendon-jerks, sometimes but not invariably associated with extensor plantar responses. In addition they observed choreiform movements and in one case a Parkinsonian tremor. In this striatal and pyramidal group, the autopsy of the brains revealed findings in correspondence with Lucke's observations.

The third group showed on autopsy large focal hemorrhages into nervous tissue, only occasionally evidencing localizing signs.

The fourth group showed signs of peripheral neuritis for whose direct relation to the onset of infective hepatitis there was good evidence.

At first the theory of a mutation of the infective hepatitis virus giving it a neurotrophic character was considered. But it was felt improbable because the onset of striatal signs coincided with a sudden increase in liver damage and not with the onset of the infection. The autopsy material did not show severe enough reactions to indicate a meningoencephalitis, though they pointed out that the tempo of the disease, once the cerebral changes have appeared, was so swift that the more distinct histological changes may not have had time to appear. Further special stains might have demonstrated more extensive damage. They were of the opinion that the chemical theory of a specific attack upon the basal ganglia and pyramidal systems by products of autolyzed liver cells was more tenable.

Turner et al[17] reported on a large group of American soldiers and felt that dysfunction of the central nervous system was one of the chief complications. Mental symptoms in the sickest patients resembled those seen in acute alcoholism, hyperinsulinisms and anoxia of the brain and indicated a grave prognosis. All patients but two who showed at the height of the attack evidence of serious insult to the central nervous system died, and all who died had evidence of dysfunction of the nervous system before death. Six patients showed what was designated as the "tremor syndrome"—most marked in the fingers, present at rest and greatly exaggerated by effort to perform exact movements.

A similar residual disturbance following postvaccinal hepatitis was reported by Benjamin and Hoyt.[18] Thirty-seven of their patients showed severe vasomotor disturbances. In 20, masklike facial expressions resembling Parkinsonism were present as well as the tremor and a peculiar gait marked by lack of free swing of the arms. The reconditioning program instituted by the army did not help these patients. The tremor remained constant and showed little improvement.

Weinstein and Davison[19] in civilian practice reported on four cases of infectious hepatitis in which the neurologic signs and symptoms were of a severity and character sufficient to lead to a diagnosis of poliomyelitis. On presenting themselves for treatment, the patients complained of stiff neck, headache and showed marked neurological signs—positive Kernig, complete areflexia, two were lethargic, one had paralysis of the bladder, one paralysis of the soft palate. The spinal fluid showed a small relative increase in cells. They suggested the necessity of ruling out infectious hepatitis in a diagnosis of poliomyelitis. They further commented that though neurologic manifestations in the preicteric phase of infectious hepatitis are rare, the actual incidence of such cases is probably more frequent than is indicated in the literature. Many so-called cases of aseptic meningitis, encephalitis of unknown etiology, and atypical polio may actually be infectious hepatitis. They believe that the pathogenesis is a mutation of the virus to exhibit neurotrophic properties.

Another report on civilian infectious hepatitis was

Cortone®

Safety in the Prolonged Control of RHEUMATOID ARTHRITIS



Successful clinical experience with CORTONE in many *large series* of patients reveals the safety of this product. The administration of CORTONE does not necessitate any measures that are not readily available to the physician in everyday practice. The use of simple laboratory tests (sedimentation rate, urinalysis, blood count, blood pressure, and recordings of weight), individualized adjustment of dosage, and careful clinical observation will permit most patients to benefit materially . . . without fear of undesired effects.

One investigator notes: "We have not been impressed by the severity or frequency of side-effects . . . The side-effects due to excessive adrenal cortical hormone disappeared when the hormonal agent was discontinued."

NORCROSS, B. M., *N. Y. State J. Med.* **51**: 2356, Oct. 15, 1951.

CORTONE *is the registered trade-mark of Merck & Co., Inc. for its brand of cortisone.*

Cortone®
ACETATE
(CORTISONE Acetate Merck)

MERCK & CO., INC.
Manufacturing Chemists
RAHWAY, NEW JERSEY
In Canada: MERCK & CO. Limited—Montreal

made by Hardy and Feemster.[20] Of 151 cases of infectious hepatitis seen by them in private practice in Massachusetts, 32 patients presented symptoms of central nervous system dysfunction—irritability, apathy, drowsiness, stiffneck, temporary delirium and depression. Another 10 had presenting symptoms of headache.

Thorling[21] reported on six cases which presented with pronounced symptoms of the central nervous system, five of whom did not show the hepatic nature of the affection from the ordinary routine examination. He believes that the intoxication theory is the most probable pathogenesis with the fundamental cause being liver insufficiency. He suggests that a mixture of factors accounts for the clinical picture—toxic decomposition products from the liver itself, pathologic metabolic products and toxic substances resorbed from the intestine with deficient detoxification.

Thus, though admittedly severe neurological complications are rare in infectious hepatitis, they are common enough to have aroused speculation.

Hepatolenticular Degeneration

When the disease was first described by Wilson, the primary cause was not known. It is now felt that the primary disease is in the liver, the brain changes being secondary though they may present the first symptoms. Professor Brouwer,[22] in a very scholarly paper, discussed the relationship of alterations in the spleen, the liver and the brain. He regards this disease as a disturbance in metabolism. He emphasized the fact that such a disturbance is not always of a general character, but may be localized in special organs, depending on the inborn factor to determine which organ will suffer. He draws analogies to hemochromatosis and the lipoidoses. He accepts the theory that the primary focus of the disease is due to toxins produced in the intestinal tract and transported to the liver via the portal system where they do their damage.

It is sometimes difficult to make the diagnosis of Wilson's disease because, though the neurological symptoms may be pronounced, evidence of liver impairment may not be obtained through ordinary liver function tests. Sweet[23] suggests that the serum colloidal gold test of Gray, the prothrombin time and the bilirubin excretion test are the more sensitive indicators of hepatic damage in these cases of minimal or no symptomatic evidence of cirrhosis of the liver.

Barnes and Hurst,[24] reporting on a family in which four cases of hepatolenticular degeneration were found, suggested that the true cause of the disease was repeated attacks of acute hepatitis. They carefully followed these cases over a period of years, examining two of the children before any of the symptoms appeared. It was noted that repeated attacks of jaundice in two of the children preceded by several years the appearance of neurological signs. This would then make it seem probable that the brain lesions found in the syndrome are similar to lesions found in other types of liver disease, but more extensive in character.

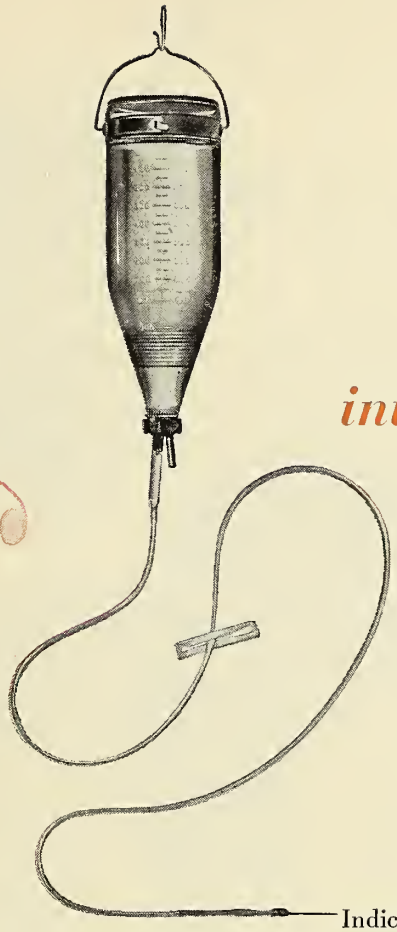
Leigh and Card,[25] reporting on a case of hepatolenticular degeneration, found that the neuropathological changes were not confined to the lenticular nuclei. In their case, they showed postero-lateral column degeneration. They offer the liver factor deficiency as causally related to the brain changes of hepato-lenticular degeneration.

From this brief review, it is apparent that many of the neurological symptoms seen in diverse types of liver disease are probably caused by the same factor. It is hoped that further extensive study of this problem will present the answer to its etiology.

Bibliography

1. Frerichs, F. T. "A Clinical Treatise on Disease of the Liver". 1860, The New Syndenham Society, London. Pages 235-246.
2. Flint, A., Jr. Experimental Researches into a New Excretory Function of the Liver, Am. J. M. Sc., 44:305, 1862.
3. Crofton, Alfred C. Hepatic Insufficiency: Its Causes, Recognition, Significance and Treatment, Medical Record, 69:653-656 April, 1906.
4. Spence, J. C. and Ogilvie, A. G. Cholemia: A Clinical Study of Nervous Symptoms in Liver Atrophy, Arch. Dis. in Childhood. 2:41-48 1927.
5. Balo and Korpassy. Arch. Path. 13:80-87, 1932.
6. Greene, Carl H. Liver and Biliary Tract: Review for 1940. Archives Int. Med. 67:867-888, 1941.
7. Snell, Albert M. and Butt, Hugh R. Hepatic Coma: Observations Bearing on its Nature and Treatment, Tr. of the Assoc. of American Physicians 56:321-330, 1941.
8. Lynch, T., Murphy, Chalmers, Thomas C., Eckhardt, Richard D., and Davidson, Charles S., New Eng. Journ. Med., 239:605-613, October, 1948.
9. Heyd, C. G. The Concept of Liver Death, J.A.M.A., 121: 736-7, March, 1943.
10. Goldbloom, Robert, Steigmann, Frederick and Popper, Hans Aureomycin in Treatment of Hepatic Failure, Journ. Lab. and Clin. Med., 36:826-7, Nov., 1950.
11. Foster, Thomas L. Liver Function and Nutrition in Relation to Toxic Psychoses, Journ. of Nerv. & Mental Diseases, 110:1-24, July, 1949.
12. Watson, C. J. and Hoffbauer, F. W. Liver Function in Hepatitis, Annals of Int. Med. 26:813-843, June, 1947.
Watson, C. J. and Hoffbauer, F. W. Liver Function in Hepatitis, Annals of Int. Med., 31:405-423, 1949.
13. Blumer. Infectious Jaundice in the United States, J.A.M.A., 81:353-358, 1923.
14. Willcox. Jaundice with special reference to types occurring during the War, Brit. Med. Journ., 1:671-675, 1919.
15. Lucke, Balduin. The Pathology of Fatal Epidemic Hepatitis, Am. Journ. Path., 20:471-595, May, 1944.
Lucke and Mallory, Tracy. The Fulminant Form of Epidemic Hepatitis, Am. Journ. Path., 22:867-947, September, 1946.
16. Stokes, J. F., Owen, J. R. and Holmes, E. I. Neurological Complications of Infective Hepatitis, Brit. Med. Journ., 2:643-645, November, 1945.
17. Turner, Roy H., Snavely, John R., Grossman, Edward B., Buchanan, Robt. N., and Foster, Stuart O. Some Clinical Studies of Acute Hepatitis Occurring in Soldiers After Innoculation with Yellow Fever Vaccine; With Especial Consideration of Severe Attacks, Annals of Int. Med., 20:193-219, February, 1944.
18. Benjamin, Julien E. and Hoyt, Ralph C. Disability following Postvaccinal Hepatitis, JAMA, 128:5, June, 1945. Pages 319-324.
19. Weinstein, Louis and Davison, William T. Neurologic Manifestations in the Pre-Icteric Phase of Infectious Hepatitis, Amer. Pract., 1:191-195, 1946.
20. Hardy, Harriet L. and Feemster, Roy N. Infectious Hepatitis In Massachusetts, New England Journal of Medicine, 235:147-157, August, 1946.
21. Thorling, Leif. Neurological Complications in Acute Infectious Hepatitis, Acta Med. Scandinavia. 137:322-335, Nov., 1950.
22. Brouwer, B. The Spleen, The Liver and The Brain, Proceedings, Royal Society Med., 29:579-591, 1935.
23. Sweet, Wm. H., Gray, Seymour J. and Allen, J. Garrot. Clinical Detection of Hepatic Disease in Hepatolenticular Degeneration. Report of 9 Cases. J.A.M.A., 117-1613-1619. Nov., 1941.
24. Barnes, S. and Hurst, E. W. Hepatolenticular Degeneration, Brain, 48:279-333, 1925.
25. Leigh, A. D. and Card, W. I. Hepatolenticular Degeneration. Journ. of Neuropathology and Exper. Neurol., 338-345, 1949.

Terramycin



intravenous

Indicated for use in all infections of such severity that intravenous injection is the preferred route, Crystalline Terramycin Hydrochloride Intravenous provides a rapid acting form for the attainment of immediate high serum concentrations. Recommended when oral therapy is not feasible, in severe fulminating or necrotizing infections, in surgical prophylaxis in selected cases, and in peritonitis. For hospital use only.

Supplied — *10 cc. vial, 250 mg.;*
20 cc. vial, 500 mg.

Terramycin is also available as *Capsules, Elixir, Oral Drops, Ophthalmic Ointment, Ophthalmic Solution.*

ANTIBIOTIC DIVISION Pfizer CHAS. PFIZER & CO., INC., *Brooklyn 6, N. Y.*

Box Score on 82nd Congress

The Kansas State Chamber of Commerce recently issued a score sheet on the 82nd Congress. Listed below in the left hand column are the major bills that passed during the session. On the right are proposals that were introduced but failed to pass during the same session.

WHAT CONGRESS DID

Voted $5.7 billion tax increase.

Appropriated $91 billion, including $58 billion for defense.

Authorized $7½ billion foreign aid.

Approved $6 billion for bases abroad.

Extended controls over prices, wages, and materials.

Approved expansion of Air Force to 140 groups from 95.

Increased postal rates.

Voted big expansion for atomic development.

Uncovered scandals in RFC, Internal Revenue Bureau, and other agencies.

Changed Taft-Hartley Act to permit "Union shops" without elections.

Removed federal secrecy provisions in public welfare program.

WHAT CONGRESS DID NOT APPROVE

Federalization of unemployment compensation.

National health insurance.

Federal aid to education.

Transfer to States of title to tidelands.

Abolition of RFC.

St. Lawrence Waterway and Valley Authorities on other rivers.

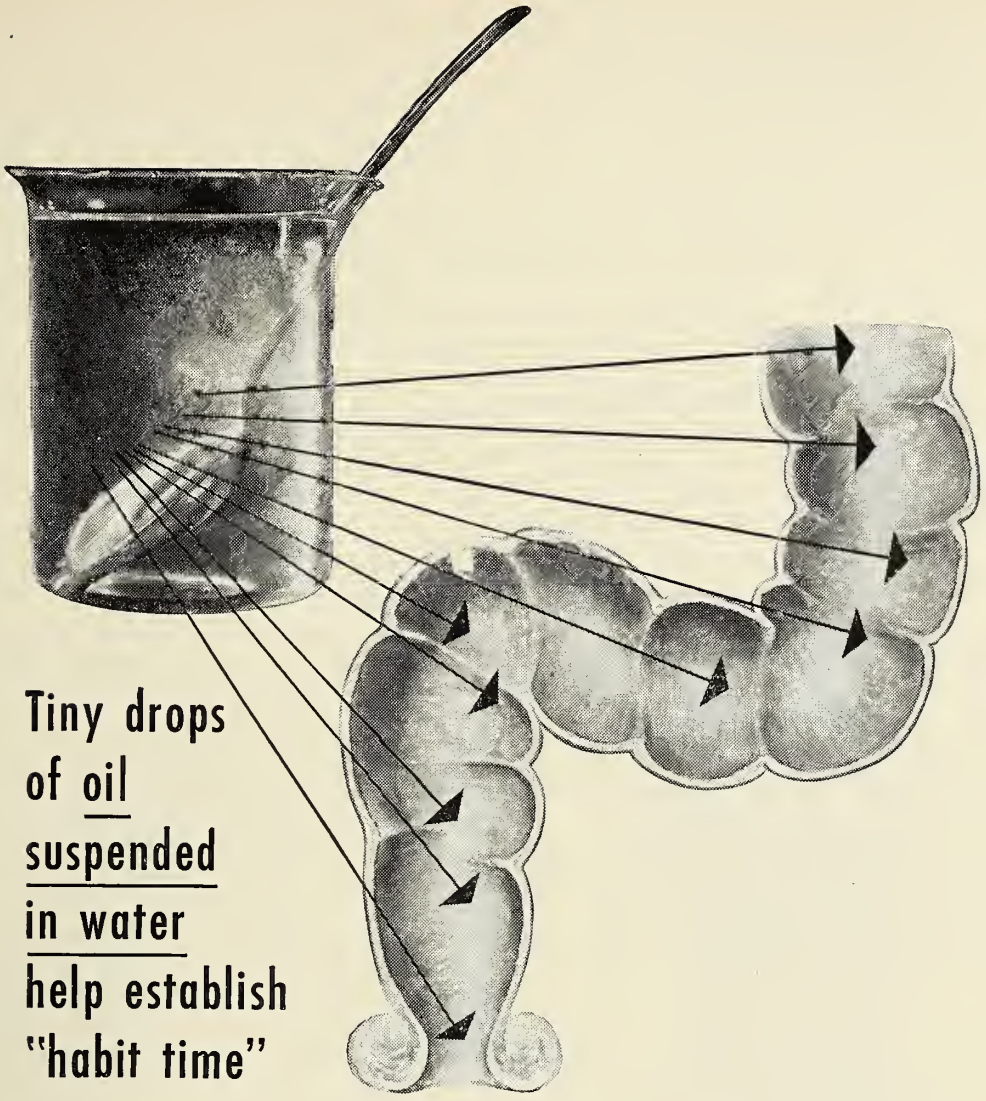
Statehood for Alaska and Hawaii.

Flood insurance program.

Direct cash payments indemnifying flood victims for losses incurred.

Clarification of basing point controversy.

Economy measures recommended by the Hoover Commission.



Tiny drops of oil suspended in water help establish "habit time"

PETROGALAR provides a moderate intake of mineral oil in the form of a water-miscible suspension.

This oil-in-water combination permeates the fecal residue to produce:

- Gentle lubricant action, without "leakage"
- Soft, nonirritating, easily passed stools
- Comfortable bowel movement

PETROGALAR may be taken alone or in milk, water or fruit juices—with which it is readily miscible.

PETROGALAR®

Aqueous Suspension of Mineral Oil, Wyeth

Wyeth® Incorporated, Philadelphia 2, Pa.

ABSTRACTS FROM CURRENT LITERATURE

Malignant Blood Vessel Tumors

Malignant Blood Vessel Tumors, a Report of 56 Cases of Angiosarcoma and Kaposi's Sarcoma. By William D. McCarthy and George T. Pack, Surg., Gyn. and Obs., 91: 465-482, Oct., 1950.

Kaposi's sarcoma, or "idiopathic multiple hemorrhagic sarcoma," was first described in 1872. It is an atypical tumor which usually has its onset as a single bluish-red macule on an extremity of an individual over 40 years of age. It usually occurs in male patients of Jewish or Italian extraction. Despite extensive study, no etiological factor, bacterial or viral, has been isolated, and reinoculation of patients with their own tumor tissue has failed to reproduce the tumor. Some systemic factor does seem to be involved, since the lesion usually becomes fairly symmetrical.

The tumor may be primary elsewhere than on the skin, and runs a course lasting from a few months to as much as 25 years. The original lesion is inflammatory in appearance, and the diagnosis may become apparent only after its progression into sarcoma.

Long remissions occur and there is some evidence that Kaposi's sarcoma may be a systemic disease of multicentric origin and long duration with little tendency to metastasize. Death usually results from extensive visceral lesions, frequently by way of hemorrhage.

Edema, connective tissue proliferation, and venous proliferation mark the second phase of the disease, with associated hemorrhage due to the imperfect formation of blood vessels. In the final sarcomatous stage, elevated black plaques appear, made up of spindle cell sarcoma interspersed with hemangiomatous elements and old blood pigment.

Tissue cultures suggest primitive mesenchymal tissues as the basis for the original lesion.

The prognosis is uncertain. The fulminating cases are limited almost entirely to Italian and Jewish patients. The average survival interval with treatment was about eight years. Treatment included all forms of irradiation therapy and surgery for the primary lesions without edema.

Angiosarcoma is discussed and differentiated from Kaposi's sarcoma on the basis of clinical course and histological findings.—*T.P.B.*

* * *

Calcific Aortic Stenosis

Calcific Aortic Stenosis Simulating Acute Coronary Thrombosis with Myocardial Infarction. By I. C. Brill and Edward E. Rosenbaum, Ann. Int. Med., 34: 2, 442-447, Feb., 1951.

The authors present summaries of four cases of calcific aortic stenosis which manifested a clinical picture identical with acute myocardial infarction, which were seen within a short period of time. The patients were one 55-year-old female and three males aged 57, 71 and 57. All had severe prolonged chest pain with shock and collapse, but autopsy studies in three disclosed only calcific aortic stenosis and E.K.G. findings in the fourth failed to confirm the erroneous diagnosis of myocardial infarction. Bibliographic references (Medicine 27: 139-185, 1948; Ann. Int. Med. 13: 143, 1939; Am. J.M.S. 215: 451-455) afford the reader an opportunity for comprehensive review of the subject.—*P.W.M.*

* * *

Abdominal Pregnancy

Abdominal Pregnancy. By Arthur S. MacGregor, Am. Jnl. Surg., 82: 365-371, Sept., 1951.

Six cases of abdominal pregnancy are reported, the incidence being one in 6,646. There were 248 cases of extrauterine pregnancy, an incidence of one in 161. The ratio of abdominal pregnancy to the more common tubal pregnancy was one in 41. Extrauterine pregnancy was found to occur more frequently in colored women and in those who had a history of previous pelvic inflammatory disease or laparotomy, and was commonly associated with a prolonged period of previous infertility. Signs and symptoms are discussed and the problems of surgical management in the late stages are reviewed. Surgery is usually indicated when the diagnosis is made, although in some instances it may be delayed "in the shadow of the operating room," in the hope of obtaining a viable infant.

The management of the placenta should be governed by findings at the time of operation. It is considered as safe to leave the placenta as to remove it, and late sequelae from the remaining placenta are infrequent. Marsupialization, packing, and drainage are attended by a high mortality and should be reserved for cases involving infection and/or hemorrhage.

Three of the infants were born alive, but one of these succumbed shortly after birth.—*T.P.B.*

* * *

Amebiasis Treated with Atabrine

Treatment of Amebiasis with Atabrine Combined with Carbarsone. By Ryle A. Radke, Ann. Int. Med., 34:6, 1432-1444, June, 1951.

The author reports a patient that was critically ill with amebiasis in whom a liver abscess had penetrated the diaphragm, and in whom a broncho pleural fistula was present. He had received two courses of 10 grs. of emetine in less than a month

from among
all antibiotics,
Neurologists and Neurosurgeons
often choose

AUREOMYCIN

because

It readily passes into the cerebrospinal fluid, the presence of meningitis making little difference in its concentration.

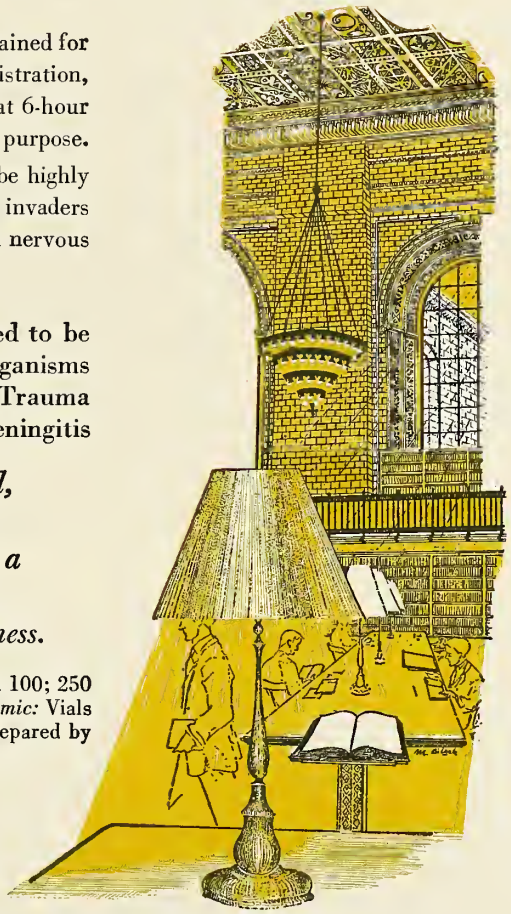
Measurable serum levels are maintained for as long as 12 hours after oral administration, oral doses of 5 to 10 mg. per kilo at 6-hour intervals being adequate for this purpose.

Aureomycin has been shown to be highly effective against those bacterial invaders commonly encountered in central nervous system infections.

Aureomycin has been reported to be effective against susceptible organisms in: Brain Abscess • Cranial Trauma Infection • Encephalitis • Meningitis

Throughout the world,
as in the United States,
aureomycin is recognized as a
broad spectrum antibiotic
of established effectiveness.

Capsules: 50 mg.—Bottles of 25 and 100; 250 mg.—Bottles of 16 and 100. *Ophthalmic:* Vials of 25 mg. with dropper; solution prepared by adding 5 cc. of distilled water.



LEDERLE LABORATORIES DIVISION
AMERICAN Cyanamid COMPANY
30 Rockefeller Plaza, New York 20, N.Y.

with no response. Since there had been some evidence that atabrine had depressed amebiasis in war areas the author thought it might be worth trying in this case. After four days on usual dosage of atabrine the patient made an amazing improvement, the temperature became normal and sputum soon ceased.

Carbarsone seemed to be most effective in destroying the amebic cysts in vitro so it was given to the patient for a 10-day period in dosage of 0.25 gms. two to three times daily. Atabrine was also given for a 10-day period, 0.1 gm. three times daily.

Emetine is a dangerous drug, some finding complications in 91 per cent of cases. Electrocardiographic changes were found in 74 per cent of a series of 38 cases, usually significant changes in the T wave.

A relapse rate of 21 per cent was reported on cases treated with emetine intramuscularly, and emetine bismuth iodide, quinoxyl and stovarsol by mouth. Forty-eight per cent relapse after emetine alone, 42 per cent after diodoquin alone, 26 per cent after combined emetine and diodoquin, and 44 per cent after combined emetine and carbarsone. The authors report a relapse rate of 12 per cent after combined atabrine and carbarsone treatment.

This 12 per cent relapse rate was determined after cases being followed for 60 to 395 days by means of smears and cultures or material taken from patients at recheck sigmoidoscopic examination. Severe reactions were encountered in two cases, one a dermatitis due to carbarsone, the other a toxic delirium due to atabrine.

Frequently repeated stool examinations were negative on amebic suspect cases, the amebae being found only by sigmoidoscopic examination, with aspiration of material from ulcers for study.

The authors conclude that atabrine is an amebacidal agent which is relatively safe for use in the doses recommended.

It should be employed in conjunction with another amebacidal agent capable of eliminating the cysts of the organism.—*D.R.D.*

BOOK REVIEWS

Standard Nomenclature of Diseases and Operations. Fourth Edition. Edited by Richard J. Plunkett under Auspices of American Medical Association. Published by the Blakiston Company, Philadelphia. 1034 pages, 4 illustrations. Price $8.00.

The advancement of scientific knowledge and scientific concepts in recent years has required many changes in the material presented in this Index for classifying diseases and operations. Several changes were made in the general arrangement of this edition:

1. The title of the third edition (1942), "Standard Nomenclature of Diseases, and Standard Nomenclature of Operations" is now combined.

2. The code numbers of the "International Statistical Classification of Diseases, Injuries, and Causes of Death" are included in italics to the right of the diagnoses in the book, and in the Appendix as a cross reference to the "Standard" code numbers.

3. The section on eponyms has been combined with the general disease index.

4. The disease index and the operation index have been placed consecutively immediately following the nomenclature of operations.

5. All supplementary terms have been grouped together under section headings in which they most frequently occur.

There has been a complete revision of diagnostic entries listed under the "Psychobiological Unit;" in the section on "Diseases of the Hemic and Lymphatic Systems;" and in the "Tumor" diagnoses. The tumor section provides for additional information concerning tumors by supplying a malignancy code. There also are several changes in the topographic section.

Many commonly used terms which do not represent acceptable diagnoses are listed in the index in the back of the book, with reference to the proper diagnostic title.

This new edition is much more complete, and should make disease classifying easier for the clinicians. The old edition will not fit in with the use of the fourth edition due to the numerous changes. —*B.P.*

* * *

The Battle for Mental Health. By James Clark Moloney. Published by the Philosophical Library, Inc., New York. 105 pages. Price $3.50.

This interesting little book presents a challenging consideration of relationship of mother and child—with which not all of us can fully agree, but concerning which it is well worth our time to give some thought. That the problem of childhood and adolescent behavior needs careful consideration is well established. How to provide the best environment and personal influence in this modern world must be resolved. That the author has at least part of the answer seems very certain.—*L.A.C.*

* * *

Materia Medica and Pharmacology. Sixth Edition. By Elsie E. Krug and Hugh Alister McGuigan. Published by the C. V. Mosby Company, St. Louis. 612 pages, 37 illustrations, 10 color plates. Price $4.25.

This book is designed as an introductory text for student nurses and is well suited for such usage. It is written with conciseness and brevity yet does not



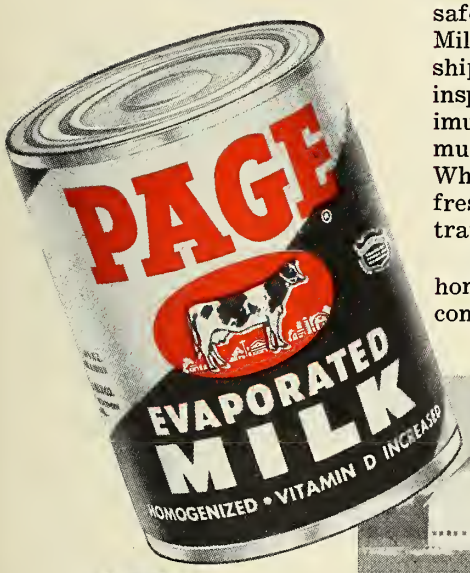
Safety first for infant feeding

PAGE EVAPORATED MILK

400 USP Units Vitamin D Added

All along the production line, from the cow in the pasture to the grocery store, Page milk is doubly safeguarded against contamination. Page Evaporated Milk is produced on farms which are exclusively Page shippers, where we can keep close control over herd inspection, milking methods and equipment. Our minimum standards are high. Cows must be clean, milk must be quickly cooled and kept at proper temperature. When milk is received at the plant, it is examined for freshness, a bacteria count is taken, the milk is concentrated, canned and *sterilized after sealing.*

Page Evaporated Milk is always superior quality, homogenized and vitamin D increased. You can recommend it with confidence.



ACCEPTED COUNCIL ON FOODS AND NUTRITION AMERICAN MEDICAL ASSOCIATION

ONLY THE BEST FARMS CAN QUALIFY AS PAGE PRODUCERS



THE PAGE MILK COMPANY
COFFEYVILLE, KANSAS
General Offices: Merrill, Wisconsin

suffer from a lack of style. All of the newer drugs have been included, and some of the concepts concerned with the use of older ones have been revised; these revisions are all well taken and are sound. This should prove an adequate and worthwhile text for the teaching of student nurses.

It should be stated emphatically that the book is not to be recommended for the practitioner of medicine or the medical student. Its very brevity and its lack of an adequate bibliography of the original literature militate against such use.—*W.C.W.*

* * *

Physical Medicine and Rehabilitation for the Clinician. Edited by Frank H. Krusen. Published by W. B. Saunders, Philadelphia. 371 pages, 96 illustrations, 13 tables. Price $6.50.

This textbook is intended to acquaint the clinician with the various aspects of physical medicine and rehabilitation which would be of use to him in his practice. It is the result of the efforts of some 24 contributors, most of whom are authorities in the particular aspects of physical medicine or rehabilitation presented by them. Dr. Donald L. Rose, of the faculty of the University of Kansas School of Medicine, is a member of this panel of contributors.

The body of the text is divided into four major sections: The Diagnostic and Therapeutic Aspects of Physical Agents and Procedures, The Clinical Value of Physical Medicine and Rehabilitation, and The Fundamentals of Anatomy, Physiology and Therapeutic Exercise as Related to Physical Medicine and Rehabilitation.

Because of the large number of contributors, there is necessarily some overlap in the several therapeutic fields presented. In the opinion of the reviewer, however, this adds to the effectiveness of presentation of the subject matter of each of these fields. Each of the chapters is brief and can profitably be read either as a part of the general subject arrangement or as a summary of that particular topic. A few of the chapters deal with the standard physical procedures employed by the clinician, such as diathermy, other forms of heat and ultraviolet. Several chapters summarize the present knowledge of the newest of physical agents, microwaves and ultrasonics, and discuss their possible medical utility.

The clinical conditions, such as hemiplegia, poliomyelitis, cerebral palsy, paraplegia, and tuberculosis, wherein rehabilitation procedures are the immediate and often the definitive therapeutic agency, are presented ably by several authors; the clinician will find excellent, practical treatment suggestions in these chapters.

Brief comment should also be made of the chapters on functional anatomy of the upper and lower extremities and the back. These are interestingly written by an able scholar in this field and present material which too often seems dull and too far removed from clinical consideration. The clinician who needs an efficient review of anatomy will profit by these chapters.

Not all phases of physical medicine and rehabilitation are presented in this book, nor is each subject thoroughly covered in all of its aspects. However, the practical elements of each field are handled well and the information gleaned from each short chapter will far repay the deficiencies which brevity necessarily entails. The book is seriously recommended for the general practitioner or the specialist who has patients for whom rehabilitation and physical medicine procedures are needed.—*D.L.R.*

American View of European Medicine

A vigorous condemnation of European forms of socialized medicine was voiced recently by Dr. Edwin S. Hamilton of Kankakee, Illinois, a trustee of the American Medical Association and a delegate to a recent meeting of the World Medical Association. Dr. Hamilton toured France, Switzerland, Germany, Denmark, Norway, Scotland, Ireland and England before returning to this country.

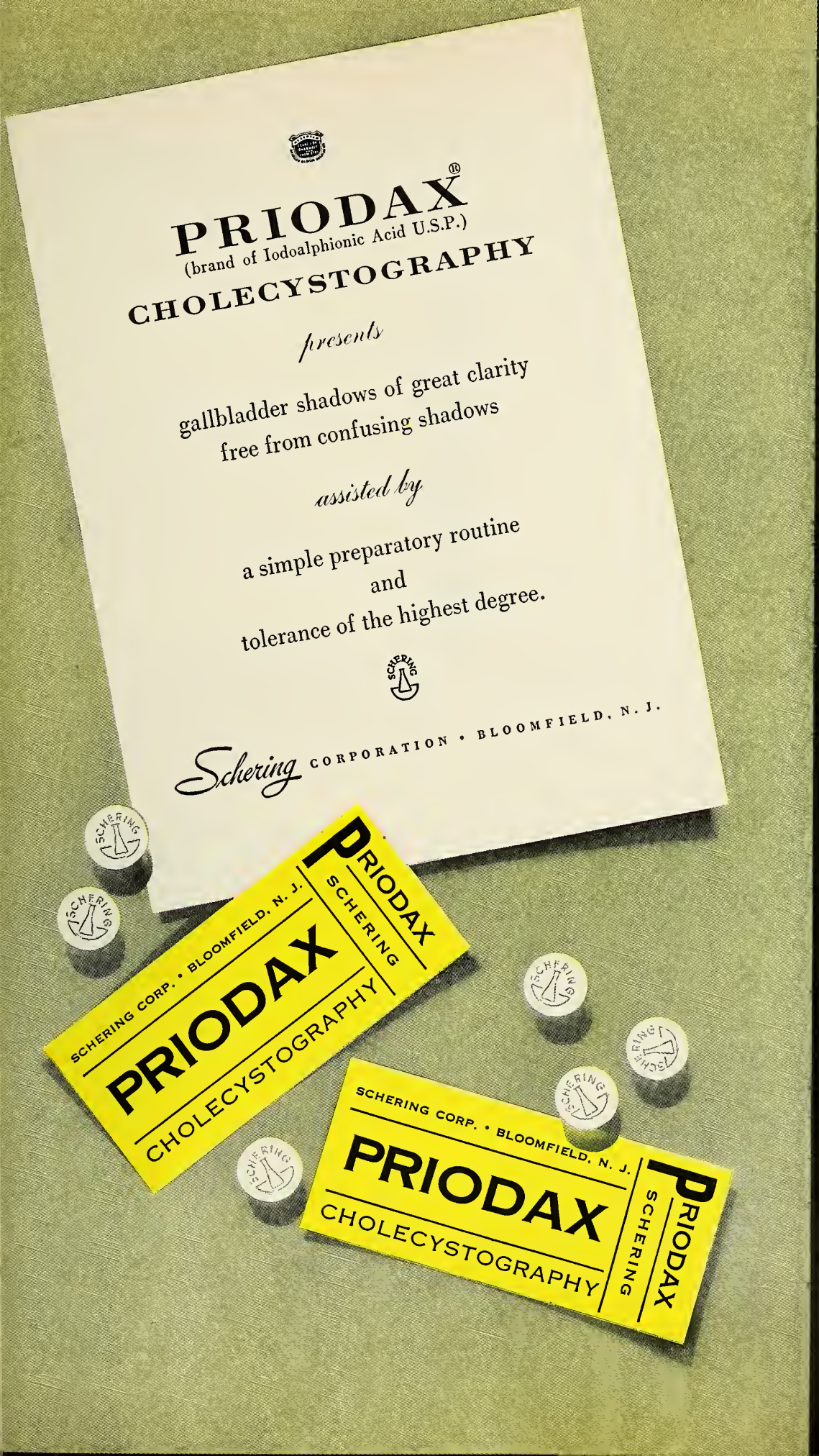
"The broad picture, as outlined at the World Medical Association meeting in Stockholm," he said, "is one of state medical care systems generally more or less acceptable to the mass public, but not at all to the medical profession.

"The importance of the distinction lies in the fact that the European masses are content because they do not know that they should expect and think they are getting a good thing for nothing. What it really amounts to is something good for nothing.

"The medical men, in vivid contrast, know what could be done without government interference and how far they fall short of their possibilities under a free medical system. That is why they are unhappy with national medicine.

"At the same time, people who can afford it and know good care go to the few remaining private practitioners when they need medical or dental care, disdaining the state systems. We are certain the American people would never accept such a lowering of the medical care quality."

A new chloromycetin product, which tastes like custard, has been developed by Parke, Davis and Company for children too young to swallow the antibiotic in capsules. Production is being increased as rapidly as possible, but the pediatric drug is not now in plentiful supply because of heavy demands for all chloromycetin products. It will be useful in treating many bacterial and rickettsial infections, including whooping cough, measles, mumps, enteric fever, dysentery, undulant fever, and urinary tract infections.



PRIODAX

SCHERING

ANNOUNCEMENTS

The University of Texas, M.D. Anderson Hospital for Cancer Research, Houston, has announced several courses of interest to physicians. These include the Sixth Annual Symposium on Fundamental Cancer Research, with a half day devoted to selected papers on the subject of nutritional factors in cancer; the Cancer Pathology and Radiology Conference on Tumors and Other Diseases of Bone; and a meeting of the South Central Section of the College of American Pathologists. The dates are April 25 and 26. All meetings will be held at the Shamrock Hotel. Further information may be obtained from William O. Russell, M.D., 2310 Baldwin Street, Houston 6, Texas.

* * *

The postgraduate assembly and convention sponsored annually by the Alumni Association of the College of Medical Evangelists School of Medicine, Los Angeles, has been scheduled for March 2-4 at the Biltmore Hotel. The managing director of the assembly is Evelyn R. Strachan, 312 North Boyle Avenue, Los Angeles 33, California, who will supply additional information.

* * *

The Second National Cancer Conference sponsored by the American Cancer Society, the National Cancer Institute and the American Association for Cancer Research will be held at the Netherland Plaza Hotel, Cincinnati, Ohio, March 3-5. The meeting is open to all physicians, and nationally and internationally known speakers will present the program.

Titles of the clinical panels are: Breast, Genitourinary, Head and Neck, Lymphomas-Leukemias, Female Genital Tract, Gastrointestinal, and Lung. The research panels will be on Radiobiology, Genetics, Cytology, Chemotherapy, Isotopes, Virology and Steroid Endocrinology. There will be opportunity for comments from the floor on each panel.

Programs may be secured from the American Cancer Society, 47 Beaver Street, New York 4, New York.

* * *

The Fifth Annual Postgraduate Course in Diseases of the Chest, sponsored by the Council on Postgraduate Medical Education and the Pennsylvania Chapter of the American College of Chest Physicians and the Laennec Society of Philadelphia, will be presented at the Warwick Hotel, Philadelphia, March 24-28. A program covering the entire field of heart and lung disease is being arranged. Inquiries may be addressed to the College, 112 East Chestnut Street, Chicago 11, Illinois.

* * *

The Mid-Continent Psychiatric Association will meet at the Hotel President, Kansas City, Missouri, April 26 and 27. Among the speakers will be Dr. Leo H. Bartemeier, president of the American Psychiatric Association; Dr. Francis J. Braceland, psychiatrist-in-chief, the Institute of Living, Hartford, Connecticut; and Dr. Dexter M. Bullard, medical director, Chestnut Lodge Sanitarium, Rockville, Maryland.

All physicians are invited to attend. Complete information may be secured from Dr. Paul Hines, 2625 West Paseo, Kansas City, Missouri.

* * *

The 30th annual scientific and clinical session of the American Congress of Physical Medicine will be held August 25-29, inclusive, at the Roosevelt Hotel, New York. Sessions will be open to physicians who are members of the A.M.A. In addition to the scientific sessions, instruction seminars will be held. Full information may be obtained from the Congress, 30 North Michigan Avenue, Chicago 2, Illinois.

* * *

The American College of Physicians has arranged a series of courses for the spring of 1952, one of which will be held in the midwest, "Current Concepts of Allergy and Associated Disorders," at Washington University School of Medicine, St. Louis, March 3-7. Applications are to be directed to Dr. E. R. Loveland, 4200 Pine Street, Philadelphia 4, Pennsylvania.

* * *

The International College of Surgeons has announced a series of six regional meetings, one of which will be held in this vicinity, in Kansas City, Missouri, April 27-29, inclusive. Headquarters will be at the President Hotel. The program will be made up of surgical papers and panel discussions.

Average length of life in the United States, based on final 1949 vital statistics compiled by the Public Health Service, has increased to a record high of nearly 68 years, the Federal Security Agency announced recently. This is a gain of almost half a year over the lifetime indicated by 1948 death rates.

White women on the average live longer than any other group, outliving men by more than five years. The average lifetime expected for white women at birth is 71½ years, while the average for white men is 65 years and 11 months.

While the expectation of life at birth has increased by more than 20 years since the turn of the century, the government agency considers the progress due almost entirely to prolonging the lives of persons who formerly would have died in infancy or at a youthful age. There has been no significant change in the average lifetime remaining to those who have reached age 65 or 70.

It's Convenient to Buy Kanox

THERAPEUTIC OXYGEN AND ANESTHETIC GASES



Oxygen Therapy
Regulators and Equipment
Repair Service for
Regulators, Flowmeters
and Humidifiers

Nitrous Oxide
Ethylene
Carbon Dioxide
Helium
Oxygen
Cyclopropane

KANSAS OXYGEN, Inc.

Phone 6392 HUTCHINSON, KANSAS Box 551



Woodcroft Hospital--Pueblo, Colorado

A private hospital for the scientific treatment of neuro-psychiatric disorders, including alcoholism and drug addiction. Beautiful landscaping and home-like surroundings afford a restful atmosphere. Accommodations vary from single rooms with or without bath to rooms en suite, allowing for segregation of guests.

Detailed information furnished on request.

Karl J. Waggener, M.D.

THE KANSAS PRESS LOOKS AT MEDICINE

Editor's Note. In this section the Journal reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

It's Cheaper to Keep 'Em

We read quite often where some community has put up skads of real dough to get a resident physician, like at Clifton, for instance, when Dr. C. A. Bowles, a brother of Mrs. Will Avery here, was induced to locate there a couple of years ago.

And at Overbrook, a town of only 420 people, near Topeka, a mass meeting will be held November 2, and a drive begun to raise at least $20,000 to build a medical clinic there and induce some physician to use it. The K. U. chancellor will be the principal speaker at the meet.

But we've never heard nor read where any town or community had done much, if anything, towards retaining their resident physician.

That brings up the query, why communities already blessed with a good resident physician shouldn't try their darndest to keep him and make him want to stay—by patronizing him when in need of such services, by paying their doctor bills as readily as other bills, and by speaking a good word for him whenever possible—instead of knocking, or just keeping mum?

(Editor's note: This is not a paid "commercial," but a free expression of our thoughts and beliefs.) —*Wakefield News, October 17, 1951.*

Solving the Problem

Every fair-minded person recognizes that there are problems connected with medical care for the people which remain unsolved. By the same token, every fair-minded person also recognizes that tremendous progress in expending and bettering medical care has been made in recent years.

The voluntary medical insurance systems, which provide protection for the family at a cost of a few dollars a month, have been an outstanding success. Their membership runs into the tens of millions and is growing. For example, in Emporia and Lyon county a majority of employed persons either are members of the Blue Cross and Blue Shield or of some other insurance group and new members are added each time a campaign is put on here.

For this reason, little is heard these days about the proposed compulsory government health insurance. People generally realize that the plan of semi-socialized medicine would provide only for a brief and limited period of hospitalization and other medical services. It would offer nothing that private plans do not offer. Yet it would substitute compulsion for voluntary action by the individual, and it would saddle the medical fraternity and the taxpayers of the country with a great new bureaucracy with an annual budget of many billions.

Much work now is being done by the medical men and the voluntary insurance organizations in attacking the problem of catastrophic illness. It is a difficult problem, and it will not be solved quickly or easily. But, step by step, the goal of ever-improving medical care for all is being reached.

American health standards are now the best in the world, an accomplishment of free medicine and voluntary action by the people. Still better standards will result from the same causes in the years to come. The nation's experiences with other government bureaus have been so disappointing—and in some instances disgraceful—that Americans aren't rushing to set up another bureaucracy that will only hike taxes a few notches higher.—*Emporia Gazette, December 26, 1951.*

It has been said often that one of the major problems of public health today is to bridge the gap between scientific knowledge and public health service. In tuberculosis control, coordinated planning and action are the tools which can help most in building that bridge. In attempting to meet the needs of tuberculosis patients, the health department, the sanatorium, the social agency, the tuberculosis association, and all the official and voluntary organizations within a community are actually working toward the common goal of controlling the disease. The effectiveness of each depends in large measure on how well the others discharge their responsibilities. By planning together, by understanding each other's limitations, and by making the best use of the services and facilities each of the agencies is prepared to offer, all will benefit and the needs of the tuberculosis patients and of the tuberculosis control program as a whole will be met more directly and more intelligently.—*Robert J. Anderson, M.D., and Edward T. Blomquist, M.D., Public Health Reports, February 2, 1951.*

Patronize Journal advertisers. All products advertised have been approved by the various councils of the American Medical Association.

93rd Annual Session, Kansas Medical Society, Kansas City, Kansas, April 27-May 1, 1952. Make hotel reservations now.

The Neurological Hospital, 2625 West Paseo, Kansas City, Missouri, a voluntary hospital providing the care and treatment of nervous and mental patients, and associate conditions.



THE LATTIMORE-FINK LABORATORIES

Topeka El Dorado
Kansas

J. L. Lattimore, A.B., M.D., Pathologist
A. A. Fink, A.B., M.D., Pathologist
H. C. Ebendorf, M.T. Serologist
A. C. Keith, B.S., Chemist
L. W. Hull, A.B., Bacteriologist
Walter Norris, A.B., Chemist

Anatomical and Clinical Pathology

Containers Furnished Upon Request

Cook County Graduate School of Medicine

ANNOUNCES CONTINUOUS COURSES

SURGERY—Intensive Course in Surgical Technic, Two Weeks, starting February 4, February 18, March 3.
Surgical Technic, Surgical Anatomy & Clinical Surgery, Four Weeks, starting March 3, June 2.
Surgical Anatomy & Clinical Surgery, Two Weeks, starting March 17, June 16.
Surgery of Colon & Rectum, One Week, starting March 3, April 7.
Gallbladder Surgery, Ten Hours, starting April 21.
Basic Principles in General Surgery, Two Weeks, starting March 31.
Breast & Thyroid Surgery, One Week, starting June 23.
Esophageal Surgery, One Week, starting June 23.
Thoracic Surgery, One Week, starting June 2.
Fractures & Traumatic Surgery, Two Weeks, starting February 4.

GYNECOLOGY—Intensive Course, Two Weeks, starting February 18, March 17.
Vaginal Approach to Pelvic Surgery, One Week, starting March 3, March 31.

OBSTETRICS—Intensive Course, Two Weeks, starting March 3, March 31.

MEDICINE—Intensive General Course, Two Weeks, starting May 5.
Electrocardiography & Heart Disease, Two Weeks, starting March 17.
Gastroenterology, Two Weeks, starting May 19.
Hematology, One Week, starting June 16.

UROLOGY—Intensive Course, Two Weeks, starting April 28.
Ten Day Practical Course in Cystoscopy starting February 18, March 3, and every two weeks.

ROENTGENOLOGY—Two-week Lecture and Clinical Courses each month.

GENERAL, INTENSIVE AND SPECIAL COURSES IN ALL BRANCHES OF MEDICINE, SURGERY AND THE SPECIALTIES
TEACHING FACULTY—ATTENDING STAFF OF COOK COUNTY HOSPITAL
Address: Registrar, 427 S. Honore St., Chicago 12, Ill.

THE MEDICAL PROTECTIVE COMPANY
FORT WAYNE, INDIANA

PROFESSIONAL PROTECTION EXCLUSIVELY SINCE 1899

specialized service assures *"know-how"*

TOPEKA Office:
J. E. McCurdy, Rep.,
1035 Randolph Avenue,
Telephone 2-3027

AMERICAN BOARD EXAMINATIONS

Anesthesiology. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15, Conn. Various locations, July 18.

Dermatology and Syphilology. Sec., Dr. George M. Lewis, 66 East 66th St., New York 21. Written, Chicago, March 1952. Oral, Chicago, May, 1952.

Internal Medicine. Sec., Dr. William A. Werrell, 1 West Main Street, Madison 3.

Obstetrics and Gynecology. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6. Oral, Chicago, June 7-13, 1952.

Ophthalmology. Sec. Dr. Ewin B. Dunphy, 56 Ivie Road, Cape Cortage, Maine. Oral. Oct. 6-10, Chicago.

Otolaryngology. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City. Oral, Chicago, Oct. 8-12.

Pathology. Sec., Dr. Robert A. Moore, 1402 S. Grand Blvd., St. Louis.

Pediatrics. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

Physical Medicine and Rehabilitation. Sec., Dr. Robert L. Bennett, 30 N. Michigan Ave., Chicago. Parts I and II, Chicago, June 9-10.

Preventive Medicine and Public Health. Sec. Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore. Written, Apr. 18, Berkeley, Calif., Minneapolis, New Orleans, Baltimore.

Proctology. Sec., Dr. Louis A. Buie, 102-110 Second Ave., S.W., Rochester, Minn.

Psychiatry and Neurology. Sec., Dr. David A. Boyd, Jr., 102-110 Second Ave., S.W., Rochester, Minn.

Radiology. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

Surgery. Sec., Dr. J. Stewart Rodman, 225 South 15th St., Philadelphia. Written, various centers, March, 1952.

Thoracic Surgery. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit.

Urology. Sec., Dr. Harry Culver, 30 Westwood Road, Minneapolis 16. Chicago, Feb. 9-13, 1952.

Death rates in the United States for several important diseases fell significantly in 1950 compared with 1949, according to Federal Security Administrator Oscar R. Ewing. The death rate for acute poliomyelitis, per 100,000 population, fell off by 39 per cent in 1950; for tuberculosis, 16 per cent; for measles, 50 per cent.

Other causes of death with decreases in death rates were gastritis and some intestinal diseases, cirrhosis of the liver, complications of pregnancy, and homicide. The maternal death rate, per 10,000 live births, dropped from 9.0 in 1949 to an estimated rate of 7.2 in 1950, a record low.

The percentage of deaths from influenza and pneumonia for 1950 increased slightly over 1949, as did that of heart disease. The rate for cancer remained at about the same level in both years.

93rd Annual Session, Kansas Medical Society, Kansas City, Kansas, April 27-May 1, 1952. Make hotel reservations now.

Patronize Journal advertisers. All products advertised have been approved by the various councils of the American Medical Association.

CLASSIFIED ADVERTISEMENTS

WANTED—16" x 24" gas or electric autoclave, with or without instrument and water sterilization attachments. Write the Journal 13-51.

FOR SALE OR TRADE—Will sacrifice direct tracing electrocardiograph in perfect condition, Cardiotron, Model PC 1A, portable, walnut case, not a scratch on it. Standard leads. Reason for disposing: doing mostly eye work and have access to EKG services. Write the Journal 14-51.

WANTED—Doctor, young or old, general practice. Write the Journal 1-52.

WANTED—Young Kansas Draft exempt active general practitioner who has had sufficient training to do all minor and emergency surgery to permanently locate. City and surrounding industrial population 1,000—closest opposition 30 miles. This location is open as a result of the young physician recently being called to service who grossed $12,000 per year. A hospital district surrounding this city has been permanently organized and a new modern eight-bed hospital will be constructed here in the near future. Write the Journal 2-52.

Nationally advertised Surgical Supplies and Equipment have been placed at Topeka, Joplin, Kansas City and St. Joseph for your convenience by—

GOETZE NIEMER CO.

Management by Dr. W. F. Goetze, a member of the American Medical Association, assures intelligent servicing of your orders.

AMERICA'S AUTHENTIC HEALTH MAGAZINE

today's health

AMERICAN MEDICAL ASSOCIATION



BUILDS FAITH IN YOU AND YOUR WORK

IN YOUR WAITING ROOM

3 YEARS $6.50 2 YEARS $5.00

1 YEAR $3.00

TROWBRIDGE TRAINING SCHOOL
Established 1917

For unusual children. Medical and psychiatric supervision. Experienced teachers. Individual special training. Home atmosphere. Enrollment limited. Approved and registered by the Council of Medical Education and Hospitals of the A.M.A. Pamphlet.

E. H. TROWBRIDGE, SR., M.D.
1905 BRYANT BUILDING KANSAS CITY 6, MO.

EYELID DERMATITIS
Frequent symptom of nail lacquer allergy



New AR-EX HYPO-ALLERGENIC NAIL POLISH
In clinical tests proved SAFE for 98% of women who could wear no other polish used.
At last, a nail polish for your allergic patients. In 7 lustrous shades. Send for clinical resume.



EXCLUSIVELY BY AR-EX Cosmetics

AR-EX COSMETICS, INC. 1036 W. VAN BUREN ST., CHICAGO 7, ILL.

OVER 31 YEARS OF EXPERIENCE

COLLECTING DORMANT ACCOUNTS FOR HOSPITALS AND PHYSICIANS

ALL FUNDS PAID DIRECT TO OUR CLIENT

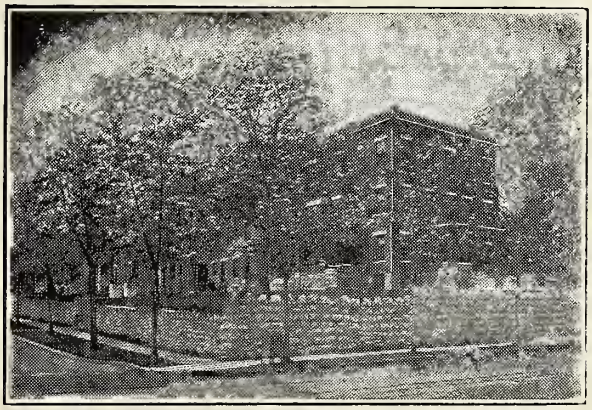
We prepare and keep all the records—furnish the supplies—do all detail work—pay part of routine postage. The plan is successful and altogether different from any other. Efficient organization and field men.

READING & SMITH SERVICE BUREAU
1004 Commerce Trust Bldg. Kansas City, 6, Mo.

THE MAJOR CLINIC ASSOCIATION

3100 EUCLID AVENUE KANSAS CITY, MISSOURI

A Well Equipped Institution for the Nervous and Mental Diseases and Alcohol Drug and Tobacco Addictions



Beautiful Location Large, Well Shaded Grounds Spacious Porches, All Modern Methods for Restoring Patients to a Normal Condition

Elderly People Accepted — Special Rates

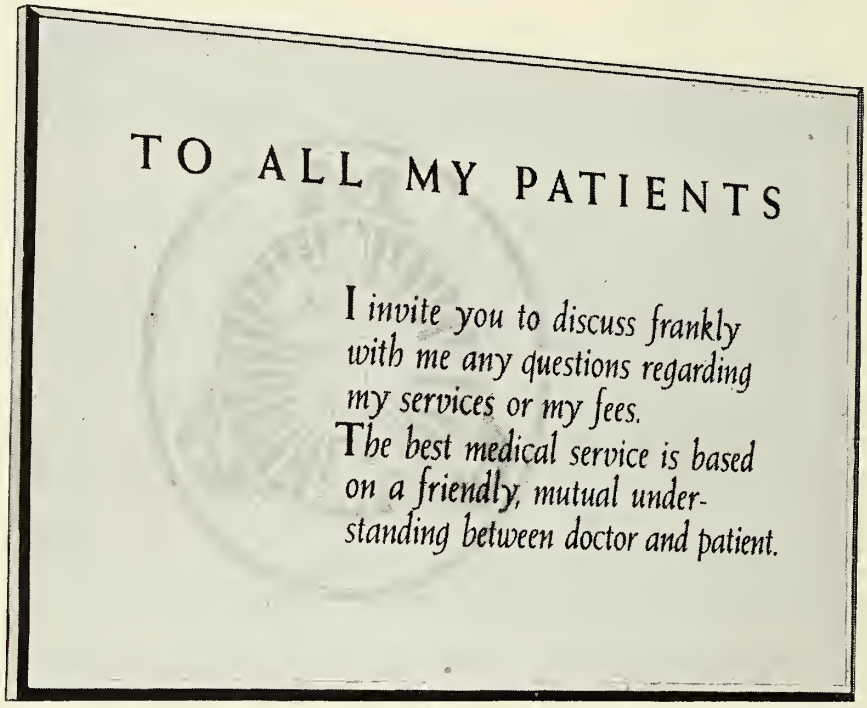
HERMON S. MAJOR, M.D.
Medical Director

HERMON S. MAJOR, JR.
Business Manager

announcing

A NEW PUBLIC RELATIONS AID

. . . to boost your PR rating



NEW OFFICE PLAQUE

- ✓ **dark brown lettering on buff**
- ✓ **harmonizes with any office decor**
- ✓ **measures 11½ by 7¾ inches**
- ✓ **for desk or wall**
- ✓ **laminated plastic finish**

As you know, a physician's best public relations is carried on right in his own office. Here the physician gets acquainted with his patients . . . gives them a chance to talk over problems . . . builds a feeling of mutual understanding between patient and doctor.

Your American Medical Association has designed an attractive new office plaque to be displayed prominently on an office desk or wall. This is a graphic invitation to patients to talk over professional services and fees. Patients like to ask questions, but often are hesitant to do so. This plaque will open the door to better relations with your patients. Order one today.

PRICE
$1
POSTPAID

Order Department
AMERICAN MEDICAL ASSOCIATION
535 North Dearborn Street
Chicago 10, Illinois

Deformity Appliances of Quality

Orthopedic and Surgical Appliances
Artificial Limbs

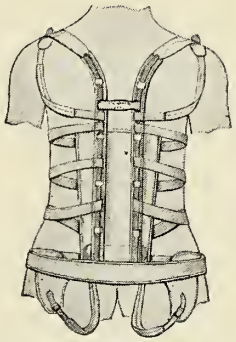
Trusses

Abdominal Supports

Elastic Hosiery

Foot Supports

Surgical Corsets



Taylor Back Brace
Made to Order
In Our Own Factory

P. W. HANICKE MFG. CO.
1009 McGee St. Victor 4750
KANSAS CITY, MO.



THE BROWN SCHOOL

Four distinct units. Tiny Tots through the Teens. Ranch for older boys. Special attention given to educational and emotional difficulties. Speech, Music, Arts and Crafts. A staff of 12 teachers. Full time Psychologist. Under the daily supervision of a Certified Psychiatrist. Registered Nurses. Private swimming pool, fireproof building. View book. Approved by State Division of Special Education.

BERT P. BROWN, DIRECTOR
PAUL L. WHITE, M.D., F.A.P.A.,
MEDICAL DIRECTOR
P. O. Box 4008, Austin, Texas

A BIG TIME-SAVER FOR EVERY DOCTOR



This handy booklet for new mothers was "built to doctors' orders". It contains blank forms for filling in your instructions and formulas.

It provides a permanent case-history record. A memo will bring you a sample...or as many as you want for your daily practice . . . without obligation.

Many doctors are prescribing "Daricraft Homogenized Evaporated Milk". It is always uniform, safe, sterilized, easy to digest, and high in food value and minerals. Daricraft contains 400 U. S. P. units of Vitamin D per pint.



PRODUCERS CREAMERY CO., SPRINGFIELD, MO.

Medical and Surgical Supplies for Doctors of Medicine and Hospitals.

Munns Medical Supply Co.
512 Kansas Ave.
Topeka, Kansas

ACCIDENT • HOSPITAL • SICKNESS

INSURANCE

FOR PHYSICIANS, SURGEONS, DENTISTS EXCLUSIVELY

ALL PREMIUMS COME FROM — PHYSICIANS SURGEONS DENTISTS — ALL CLAIMS GO TO

$5,000 accidental death	$8.00
$25.00 weekly indemnity, accident and sickness	Quarterly
$10,000.00 accidental death	$16.00
$50.00 weekly indemnity, accident and sickness	Quarterly
$15,000.00 accidental death	$24.00
$75.00 weekly indemnity, accident and sickness	Quarterly
$20,000.00 accidental death	$32.00
$100.00 weekly indemnity, accident and sickness	Quarterly

COST HAS NEVER EXCEEDED AMOUNTS SHOWN.
ALSO HOSPITAL POLICIES FOR MEMBERS' WIVES AND CHILDREN AT SMALL ADDITIONAL COST

85c out of each $1.00 gross income used for members' benefits

$4,000,000.00 Invested Assets — $18,300,000.00 Paid for Claims

$200,000.00 deposited with State of Nebraska for protection of our members

Disability need not be incurred in line of duty—benefits from the beginning day of disability

PHYSICIANS CASUALTY ASSOCIATION
PHYSICIANS HEALTH ASSOCIATION
50 Years under the same management
400 FIRST NATIONAL BANK BLDG., OMAHA 2, NEBRASKA

Index to Advertisers

Abbott Laboratories VII
Ames Company, Inc. VI
Ar-Ex Cosmetics, Inc. 101
Ayerst, McKenna and Harrison, Ltd. V

Brown School 103

Coca-Cola Company XVI
Continental Casualty Company XIII
Cook County Graduate School of Medicine 99

Duncan Laboratories XVII

Goetze Niemer Company 100

Hanicke, P. W., Manufacturing Company 103

Isle, W. E., Company 99

Kansas Oxygen Division 97

Lattimore-Fink Laboratories 99
Lederle Laboratories, Inc. 91
Lilly, Eli, and Company Facing XVIII

Major Clinic 101
Mead Johnson and Company Back Cover
Medical Protective Company 99
Merck and Company, Inc. 85
Munns Medical Supply Company, Inc. 104

Neurological Hospital Association 99

Page Milk Company 93
Parke, Davis and Company Inside front cover and III
Pfizer, Charles, and Company, Inc. ... X, XI and 87
Physicians Casualty Association 104
Producers Creamery Company 103

Ralph Sanitarium Inside Back Cover
Reading and Smith Service Bureau 101

Schering Corporation 95
Searle, G. D., and Company 83
Southwest Scientific Corporation 104
Squibb, E. R., and Sons VIII and IX

Trowbridge Training School 101

University of Kansas Medical Center XVI
Upjohn Company XV

Wander Company XIV
Winthrop-Stearns, Inc. XVIII
Woodcroft Hospital 97
Wyeth, Inc. 89

Merck & Mallinckrodt ® Reagents
KLINE TEST ANTIGEN (LAMOTTE)
PYREX LABORATORY GLASS WARE
PIPETTES AND BURETTES
PRECISION EQUIPMENT
HARTMAN-LEDDON SPECIALTIES
LABORATORY SUPPLIES & EQUIPMENT
KANSAS OWNED
Southwest Scientific Corporation
122 S. St. Francis — Wichita 2, Kansas

THE JOURNAL
of the
KANSAS MEDICAL SOCIETY
Owned and Published by The Kansas Medical Society

Volume LIII MARCH, 1952 No. 3

A Working Program for the Care and Treatment of the Hypertensive Patient

E. Grey Dimond, M.D.*
Kansas City, Kansas

A discussion regarding the treatment of essential hypertension must be predicated on the assumption that we are speaking of the type of hypertension which is generally seen and not the hypertension associated with coarctation of the aorta, pheochromocytoma, adrenal or pituitary tumors, or remediable renal disease. The importance of differentiating these various forms of hypertension is apparent and the differentiation usually not difficult. Although it is true that the vast majority of individuals will be essential hypertensives and it is but the rare patient who will have a pheochromocytoma, certainly every patient with essential hypertension should have a benzodioxane test or some other test for an adrenal medullary cause for hypertension. The simple habit of palpating the pulse in the feet will serve to eliminate hypertension due to coarctation of the aorta.

The treatment of hypertension lies not in medicines nor in surgery for the vast majority of individuals. The great percentage of patients with hypertension will live out their lives to pass on from some other disease, or perhaps if they have been fortunate they will never have known they have hypertension and will never have been subjected to treatment.

There is a much smaller group of unfortunate individuals whose elevation in blood pressure will be so severe as to be dangerous. The disease will be so destructive that over 50 per cent of this group will die from either a coronary occlusion or cardiac failure. Of the remaining, 40 per cent will die from central nervous system complications and 10 per cent will die in uremia. It is toward this group that the following comments are directed.

Good, practical, across-the-desk psychiatry is the most generally successful treatment for early hypertension. The use of barbiturates must be controlled by the physician. He must be careful that his patient does not gradually need additional doses until he has also added night-time seconal to his medications and is in danger of becoming habituated. The amount of phenobarbital necessary can be tempered greatly by insisting that the patient modify his daily activities, arranging for adequate periods of rest and relaxing hobbies. For the competitive type of personality that the average hypertensive seems to have, poker and bridge are certainly tensive experiences and should be cautioned against. Interrupted medication with phenobarbital is a proper and conservative method of administration, the drug being interrupted for a week or two after a similar period of administration. A great deal of phenobarbital is dispensed carelessly, without proper regard for the long range welfare of the patient.

For those individuals in whom there is evidence that the elevated blood pressure is steadily progressing and that the vascular symptoms are increasing, the next treatment to be utilized is some form of veratrum viride. Several commercial products are available, none of which is ideal and all of which will probably be replaced in the near future. Vertavis is a crude form of veratrum viride which has had considerable clinical trial and is undoubtedly successful in a certain number of patients. It is economical and practical to use, but must be used with constant supervision. The effective dose is close to being a nauseating dose, and many individuals cannot take it because of vomiting. Veraloid is an extract of veratrum viride, probably a purer preparation than vertavis, and individuals unable to tolerate vertavis should be given a definite trial on veraloid. Phenobarbital can be used concurrently. It is not uncommon for a patient to obtain results for a

*Director, Cardiovascular Laboratory, University of Kansas School of Medicine, Kansas City, Kansas.

while on the drug and then become resistant to it. However, the drug can be re-established after a period of rest and may again be found efficacious.

However, these drugs are not ideal for the chronic management of hypertension. Autonomic nervous system blocking, dispensed under such various trade names as etamon, dibenamine, regitine, etc., are uniformly of no practical value in the management of chronic hypertension. However, the veratrum products and the blocking agents are useful in the management of the patient with hypertensive encephalopathy or in attempting to stabilize the malignant hypertensive prior to surgery. I have used a veratrum product, veratrone, in hypertensive encelphalopathy and toxemia of pregnancy with good result. The present status of any of these drugs in the chronic management of hypertension is limited but should be given a trial.

For that group of patients failing to benefit from these measures, there is definite evidence to indicate that sodium restriction can benefit a considerable number. This requires closer adherence to dietary restriction than is generally followed. It has been definitely shown that certain individuals will not have a decrease in their diastolic pressure until they have cut their sodium intake to as low as 200 milligrams a day. This requires a careful appraisal of the diet with consultation with the wife and careful dietary instruction. The importance of the diet must be impressed upon the individual because he will be most recalcitrant after a few days on the diet. Unless he has a sincere desire to maintain the regimen, the procedure is useless. A trial of at least one month would be necessary to establish the results adequately. A simple office procedure, such as the bedside chloride test,[1] should be used to test for chloride in the patient's urine.

For those individuals not benefiting from sedation, veratrum viride, and salt restriction, it is worthwhile to try the rice diet as described by Kempner. This is not recommended with the viewpoint that rice itself is a specific therapy but rather because this diet offers a simple means of giving a low sodium, low animal protein, low cholesterol, reducing diet. Due consideration must be given to the fact that many of Kempner's claims have *not* been disproved. Although it is generally felt that the diet is effective because of sodium restriction, this theory is not agreed upon by all careful students of the subject. In fact, there are just enough patients who, inexplicably, respond to the rice diet, that anyone with progressive disease deserves giving it a trial.

The combination spa-revival camp atmosphere of the rice houses at Durham, North Carolina, cannot be equalled by the family physician, but at least a positive enthusiasm must be demonstrated by the doctor when he prescribes this diet. This enthusiasm undoubtedly will have some immediate reassuring effect on the patient; but more than this, it is necessary in order to keep the patient on such a Spartan menu. The wife's help must be enlisted and considerable thought given to devising clever alterations of the monotonous diet. Before the diet is given, the patient must be prepared psychically so that he is actually anticipatory and even eager to try it. This is important inasmuch as continuous limitation of the daily intake to fruit, fruit juices, and rice is a distressing experience, and the patient will need all the encouragement and moral support that he can obtain to stay on the diet. The patient's relatives should be warned that their encouragements are necessary in order for the patient to persevere.

While on the rice diet the patient should receive iron and vitamin preparations. Kempner has recommended at least a six months trial before deciding if the diet is effective. Six weeks to eight weeks is probably long enough. There is adequate evidence to indicate that in a certain number of patients there will be a definite fall in the diastolic pressure.

Unfortunately there will be other individuals for whom the previous procedures will have no effect and whose course will be steadily downhill with evidences of vascular deterioration. For these individuals, sympathectomy must be considered and considered seriously. At present there are three forms of sympathectomy in vogue, the Peete, the Smithwick, and the Grimson. The Smithwick operation has had probably a greater amount of study. It consists of a two-stage, bilateral operation, above and below the diaphragm, with the removal of the sympathetic nervous system from approximately T-7 to L-3. Although the majority of individuals will have a return of blood pressure to hypertensive levels after two or three years, nevertheless during that period of time the individual has been spared the ravages of disease. It is very possible also that he no longer is able to hyper-respond to certain stimuli. In other words, he loses the ability to have hypertensive peaks.

Sympathectomy need not be eliminated for those individuals who already have severe vascular disease. Definite evidence shows that these people may be given a reprieve of several years.[2]

It is a grave error to recommend a sympathectomy without also carefully informing the family of the occasional undesirable results. I have had patients obtain a persistent fall in blood pressure but have such severe back pain that they considered the operation unsatisfactory. Patients must also be warned of the possible loss of ejaculatory power.

In recent months it has been definitely established

that by carefully using cortisone, DOCA, and salt, an individual can be well maintained after the surgical removal of both adrenals. Thus the hypotensive state of Addison's disease can be produced and the patient maintained in a state of well being by proper restorative therapy. This form of surgical treatment of severe hypertension seems to be beginning a popular vogue. It is very possible that until some medical treatment such as Schroeder's suggestion of 1-Hydrazinophthalazine and Hexamethonium is developed, adrenalectomy will be the most certain way of lowering blood pressure. Physicians must remember, however, that the maintenance of an adrenalectomized patient is difficult and access to adequate laboratory procedures necessary. Therefore, the procedure is not at present suitable for the majority of institutions.

It is granted that there are individuals for whom the above procedure will offer nothing and that their ultimate outcome will be death due to vascular changes from hypertension. This is true and cannot be denied. It is important to stress, however, that the physician must have a systematic, progressive form of treatment for these people; that death is not inevitable from the disease in all these individuals; that the course of the disease can be allayed; and that useful years can be added. Although the majority will not be cured, it is important to remember that palliative therapy is good therapy and often a delay in the progress of the disease will permit survival of the patient until such time as some more efficacious form of treatment is available.

Bibliography

1. Scribner, B. H.: Bedside Determination of Chloride: a Method for Plasma, Urine and Other Fluids and Its Application to Fluid Balance Problems. Proc. Staff Meeting, Mayo Clinic. 25:209, 1950.

2. White, Paul D., Dimond, E. Grey, Williams, Armistead: Follow-up Study of One Hundred Private Hypertensive Patients with Cardiovascular Complications. Journ. American Medical Association. 143:1311, 1950.

Surgical Injuries of the Urinary Tract

Raymond W. Stockton, M.D.,* and Robert H. Owens, M.D.**

Kansas City, Kansas

The urinary tract, unusually well protected by nature from trauma, is frequently the site of injury during abdominal and pelvic surgery. Unfortunately, many of these injuries occur during elective surgical procedures. The surgeon finds that, rather than helping his patient, he has corrected a relatively benign condition only to substitute a lesion that may be a source of pain and annoyance to his patient for years and may finally result in the loss of vital renal function.

It is the purpose of this paper to point out those procedures during which such injuries commonly occur, the types of injuries that may be encountered, the principles of treatment of these injuries, and prophylactic measures by which some of these lesions may be avoided.

It will be noted that no mention is made of surgical injury to the kidney as, due to the anatomic exclusion of this organ from the common operative fields, this complication is extremely rare.

Surgical Injury to the Ureter

The ureters are especially vulnerable to injury at the time of total hysterectomy. There are many other surgical procedures which endanger the ureters and, with the more radical pelvic surgery which is being performed for cancer, ureteral injuries become increasingly important. Injury to the ureter may occur by tearing, cutting, clamping, suturing, or puncturing. In spite of the type of injury, the important thing is early recognition so that proper treatment may be instituted as soon as possible. Early recognition is not always easy and secondary urinary complications may result.

Rusche and Bacon,[2] in reviewing 50 cases of ureteral injury, listed the following surgical procedures as most commonly associated with ureteral injury:

1. Gynecological
 a. Hysterectomy and oophorectomy (ovarian tumors)
 b. High forceps and breech delivery
 c. Colporrhaphy
2. General surgery
 a. Sigmoid and rectal surgery
 b. Appendectomy

During gynecological surgery, ureteral injury most often occurs during clamping of the uterine artery at the level of the internal os.

We should like to discuss the diagnosis and treatment of such injuries and to critically review nine such cases. In this series we have divided the cases

*Instructor in Urology, University of Kansas Medical Center, Kansas City, Kansas.

**Resident in Urology, University of Kansas Medical Center, Kansas City, Kansas.

CHART NO. 1

Ureteral Injury Recognized at the Time of Surgery

Patient	*Primary Disease*	*Operation and Findings*	*Post-op. Complications*	*Urological Intervention*	*Comment*
L.R.	Ca. cervix	Ca. involving uterus rt. ureter and bladder—Total Hysterectomy, partial Cystectomy and ligation of rt. ureter	11-19-50—Temp. 106° Severe rt. flank pain. 11-20-50—Temp. 105° Pain and mass in rt. flank	11-20-50—Right Nephrectomy and Ureterectomy Cortical abscess of kidney found at operation	Normal Pre-op. pyelograms and sterile urine
G.H.	Pseudo-mucinous cystadenoma of left ovary	Cystic mass involving intestines and left ureter— Oöphorectomy Colostomy Ligation of left ureter	1-14-51—Urine loaded with pus. 1-17-51—Pneumonia, left base	None	Direct ligation of ureter without complications
R.S.	Intra-ligamentous Sarcoma of uterus	Mass in rt. broad ligament— Ureter avulsed 4 cm. from renal pelvis during total Hysterectomy	Febrile 4-5 days	Immediate Nephrectomy	Immediate Nephrectomy without complications

into those not recognized at the time of surgery and those which were recognized at the time of surgery.

The above cases were all recognized at the time of surgery. This, unfortunately, is a smaller group than the unrecognized injuries. In Holloway's series of nine cases, only two were recognized at the time of surgery. The recognized injuries frequently occur in extensive surgery where conservative measures are difficult or impossible. For this reason, no example of a conservative manner of treatment is recorded in this series.

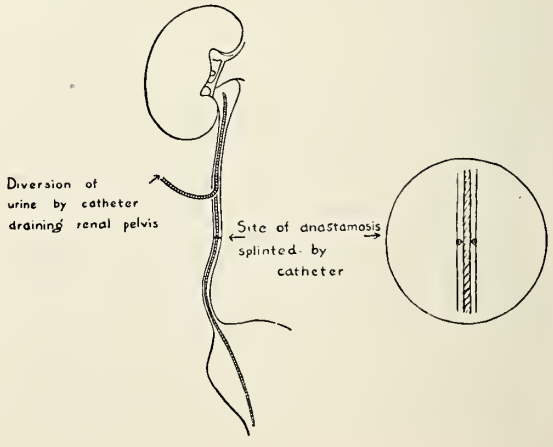
If injury should occur by clamping or inclusion of the ureter in a suture, the clamp or suture should be removed and a ureteral catheter left indwelling through the site of injury for 72 hours. There is a definite element of risk in maintaining the ureteral splint for a longer period than this as evidenced by several cases on record in which the splinting catheter eroded through the ureteral wall and into the iliac vessels, resulting in fatal hemorrhage before the complication was recognized. If the area of damage is either too large or is necrotic, then direct anastomosis of the freshened edges may be performed.

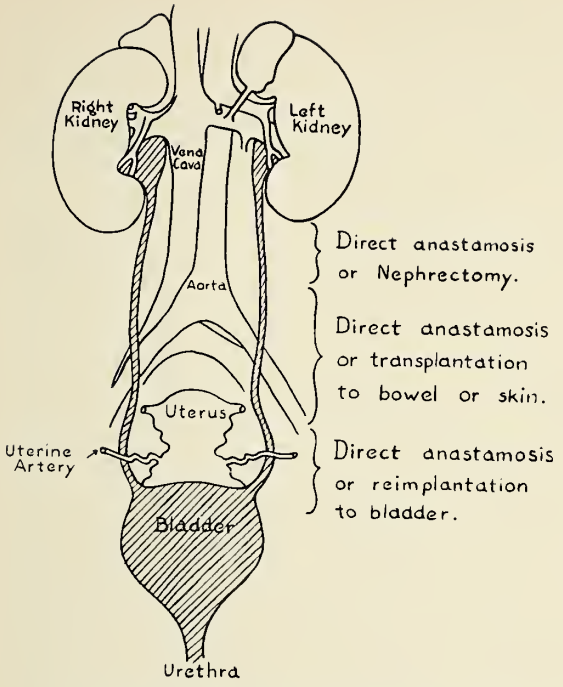
This is done over a ureteral catheter using fine silk suture which extends through all the layers except the mucosa. An extraperitoneal drain is then placed to the site of anastomosis and removed on the ninth postoperative day. It is also important that the closure not be made under tension.

If the injury has occurred to the lower one-third of the ureter and the defect is too large for direct anastomosis, the stump of the ureter may be reimplanted into the dome of the bladder. This is an excellent procedure and will conserve vital renal tissue. The bladder flap method as described by Ockerblad[3] will sometimes permit this solution of the problem when the ureter is of insufficient length for anastomosis to the bladder without tension.

When the injury is extensive, more radical procedures have to be performed. The simplest method is to ligate the end of the ureter and allow the kidney to undergo autonephrectomy. In a poor risk patient this has the great advantage of being rapid. There are, however, three main objections which must be considered:

1. If the kidney is infected the patient will develop a severe pyonephrosis in spite of chemotherapy, and emergency nephrectomy may be necessary.





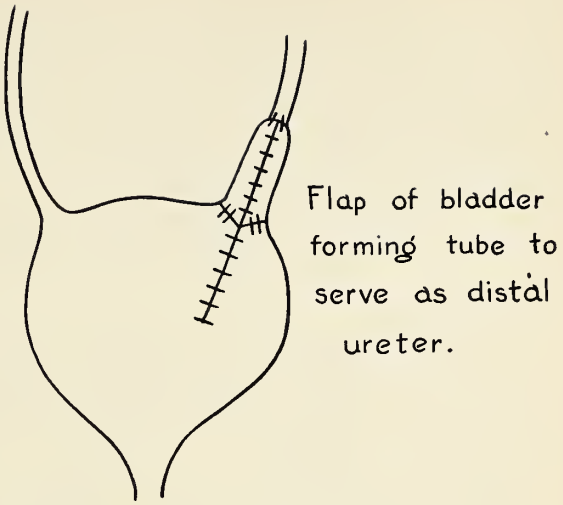
2. Vital renal tissue will be sacrificed and, without knowledge of the function of the other kidney, the life of the patient may be endangered or shortened.

3. Any attempt at later reconstructive procedure is lost.

Case 1 graphically illustrates the first objection to this procedure. In spite of the fact that the preoperative urine culture was negative and excretory urograms were reported as normal, the patient developed a severe obstructive pyonephrosis and septicemia. This necessitated a secondary nephrectomy, thus subjecting the patient to two major procedures in three days. In Case 2, ligation resulted in a smooth postoperative course with complete recovery of the patient.

If the continuity of the ureter cannot be reestablished, the safest procedure is cutaneous ureterostomy. This is a relatively rapid and simple procedure. By leaving an indwelling catheter in the renal pelvis, adequate drainage is assured. It has been suggested that, if ligation is performed, the ureter should be brought out extraperitoneally and left in the subcutaneous tissue with the ligature extending out through a stab wound. In this way, if an obstructed pyonephrosis should occur, the ureter will be easily mobilized and drainage may be instituted by inserting a catheter into the pelvis of the kidney.

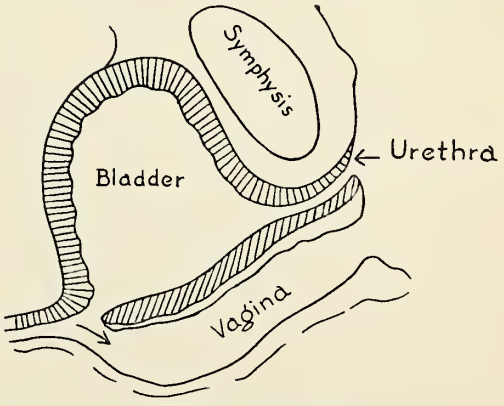
Uretero-ureterostomy has been advocated but is a poor alternative. By anastomosing one ureter to the other the function of both kidneys may be disturbed, either by stricture at the site of anastomosis or by



chronic infection. If total destruction of the ureter occurs the only alternative is immediate nephrectomy or nephrostomy. In Case 3 the ureter was avulsed four centimeters from the renal pelvis and any reconstructive procedure was impossible. An immediate nephrectomy was performed with an uneventful convalescence.

Unidentified injuries to the ureter usually lead to late urological sequelae. In Case 1 (Chart 2) the ureter had evidently been partially ligated six centimeters above the ureteral orifice. The involved kidney showed impaired function on I. V. pyelograms, but urine was still being excreted from the left ureter. With conservative management the patient had an uneventful recovery and the pyelograms returned to normal within three months. This could be explained either by absorption of a catgut ligature or resolution of edema around the site of trauma.

The more common result is the development of a uretero-vaginal fistula. Cases 2, 3, 4, and 5 are all examples of this complication. It will be noted that all patients had hysterectomy with unrecognized ureteral trauma. From three to 14 days postoper-



Uretero-vaginal fistula

CHART NO. 2

Ureteral Injuries Not Recognized at the Time of Surgery

Patient	*Primary Disease*	*Operation and Findings*	*Post-op. Complications*	*Urological Intervention*	*Convalescence*	*Comment*
K.R.	Fibroid uterus	6-28—Total Hysterectomy Left ovary adherent to uterine wall	Moderate pain in left flank	6-28—IVP's—Impaired function on left 7-2—Retro-obstruction at 6 cm. on left	Good	No surgical intervention
N.O.	Adeno-carcinoma uterus	12-16-48—Total Hysterectomy	Post-op. drainage of urine from vagina left pyonephrosis	3-2-49—Reimplantation of left ureter into bladder	Good	
N.H.	Menorrhagia	2-7-44—Total Hysterectomy	Post-op. urinary drainage from vagina	IVP—Left hydronephrosis Retro-obstruction at 6 cm. 4-16—Left Nephrectomy	Good	
L.M.	Myoma of uterus Chronic Oöphoritis	7-28—Total Hysterectomy	Post-op. urinary drainage from vagina	Same as above except obstr. at 3 cm. 10-6-48—Nephrectomy	Good	
D.S.	Adeno-carcinoma of uterus	4-22-49—Panhysterectomy	Post-op. urinary drainage from vagina	IVP—Early hydro. Left with visualization of vagina 6-10-49—Left Nephrectomy	Good	Pelvis negative on 11-11-50
D.W.	Squamous cell carcinoma of cervix	Pelvic Evisceration	Anuria—Non-functioning left kidney—Pre-op.	Rt. Nephrostomy	Poor	Died on 22nd Post-op. day

atively they all began to drain urine from the vagina. This symptom can occur with either vesico-vaginal or uretero-vaginal fistula. The steps in Chart 3 are taken in making the differential diagnosis.

Once the diagnosis of uretero-vaginal fistula is made, treatment must be considered. If the kidney on the involved side is still functioning, a reconstructive procedure should be planned. In Case 2

CHART NO. 3

Procedure	*Uretero-Vaginal Fistula*	*Vesico-Vaginal Fistula*
I.V. Pyelogram	Delayed function and/or hydronephrosis on the involved side	Negative
Cystoscopy	Normal bladder	Evidence of fistula
Ureteral Catheterization	Obstruction at the site of injury	Normal
I.V. Indigo carmine	No excretion from involved ureter	Normal bilateral excretion of dye from ureters
Methylene blue in bladder with vaginal pack	None appears on vaginal pack	Vaginal pack stained with dye

the lower end of the ureter was explored and a reimplantation into the bladder was performed. The area of injury is usually bound down by dense fibrous tissue as the result of periureteritis. For this reason, any closure of the fistula or local plastic repair is impossible. The most certain method of cure is nephrectomy. This should be performed only after a careful evaluation is made of the uninvolved kidney. When nephrectomy is performed as an elective procedure, mortality and morbidity are low. By removing the secreting source the fistula will close spontaneously.

The last case is included only to show the grave sequellae which are occasionally encountered by the urologist and the difficulties in management. This patient had a far-advanced carcinoma of the cervix with involvement of the left ureter and a non-functioning kidney on the left. A radical pelvic evisceration was performed and the remaining functioning ureter was transplanted into the sigmoid. This was a prolonged operative procedure accompanied by severe shock for which the patient received many pints of blood. Postoperatively she was anuric for 48 hours. The anuria could have been on the basis of pre-renal azotemia, prolonged shock with cortical ischemia, lower nephron nephrosis, or as a result of edema at the site of the anastomosis with a resultant obstructive hydronephrosis.

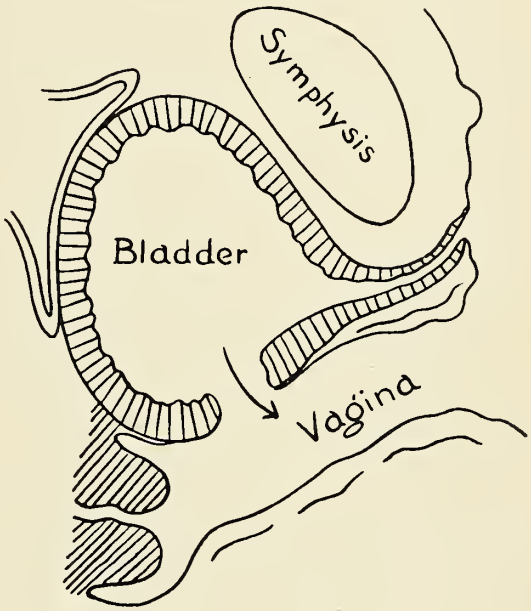
It was thought advisable to explore the right kidney. The ureter and renal pelvis were found to be dilated with 200 cc. urine. A nephrostomy was performed. The patient did secrete urine but remained oliguric and died on the 22nd postoperative day of progressive renal failure. It is probably wise to do a cutaneous ureterostomy when the disposition of a single functioning ureter is involved.

In cases of total anuria following extensive surgery in which the possibility of bilateral ureteral ligation exists, immediate cystoscopy and retrograde catheterization of the ureters should be attempted. If this complication should be found and the condition of the patient does not permit reconstructive surgery, the kidneys should be drained by nephrostomy until circumstances permit definitive surgery to reestablish urinary drainage through normal channels.

Of course, the best treatment of all is prophylaxis. The preoperative insertion of No. 6 Fr. ureteral catheters will greatly facilitate the identification of the ureters and, if injury should occur, the catheters can be used for drainage. Above all, preoperative I. V. pyelograms in cases requiring extensive surgery will give a great deal of information as to the status of the urinary tract and, if some emergency procedure has to be performed, the quality of function of the other kidney will be known.

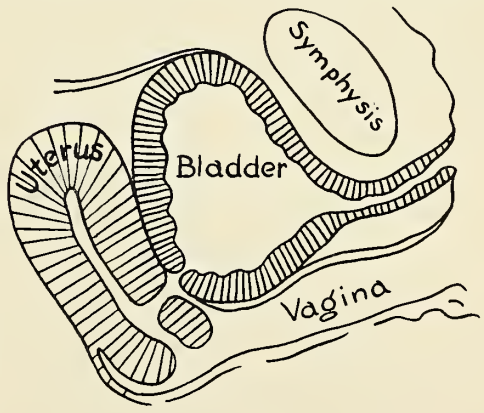
Surgical Injury to the Urethra

Surgical injury of the urinary bladder is probably a more common though usually less serious occurrence than ureteral injury and frequently befalls the practiced surgeon as well as the neophyte. Vesical damage, with or without fistula formation, may occur from an incised wound, pressure necrosis following clamping, or the pressure of retraction, or suture which has caught the bladder wall.



Vesico-vaginal fistula

These injuries most often occur during gynecological procedures such as total abdominal hysterectomy, vaginal hysterectomy, plastic operations for prolapse, and myomectomy for anterior or cervical fibroids.[5] The surgeon may fall victim to this misfortune by



Vesico-utero-vaginal fistula

incising the peritoneum with the bladder distended or adherent from previous surgery, during pelvic operations for the eradication of neoplasm such as segmental resection of the sigmoid or combined abdomino-perineal resection, or in opening a hernial sac, usually inguinal, which contains bladder. The obstetrician occasionally finds himself involved in this problem following the repair of cervical lacerations and following instrument delivery.

Here again, as in the inadvertent injury to any organ or structure, the important factor is recognition of the lesion and prompt institution of the proper therapy. Surgical injury of the bladder, if recognized and properly treated at the time of its occurrence, should usually cause no undue apprehension on the part of the surgeon. There is probably no other viscus in the body which can be injured to a similar extent and, if properly treated, present such a benign postoperative course. The ability of the bladder to heal and regenerate is so remarkable that practically the entire bladder, excluding the trigonal area, may be excised and the patient present a near-normal function and capacity within a matter of months.

Simple incision of the bladder requires merely closure with interrupted chromic catgut suture through all of the layers of the wall. Ordinarily, no attempt need be made to control bleeding in the incised wall of the bladder as approximation by the sutures and the subsequent edema will do this effectively. The sutures should not be tied so tightly that they will strangulate the intervening tissue, and a small penrose drain should be left in the prevesical space for a period of 48 hours. A No. 22 Fr. foley-bag catheter should be left indwelling and connected to under-water suction for a period of 10 days to prevent distension of the damaged viscus. In repairing any lesion in the region of the trigone one must always consider and exclude a coexisting lesion of the adjacent ureter.

Surgical violation of the bladder wall, if unrecognized and untreated, may give the signs and symptoms of extravasation of urine from any cause, i.e., progressively increasing pain in the lower abdomen, involuntary muscle rigidity, rapid pulse, fall in blood pressure, and later, urinary phlegmon with slough or fistula formation. With clinical signs and symptoms of such injury, the diagnosis may be confirmed by cystography and/or cystoscopy. If these signs have not been noted during surgery, the patient should be returned to the operating room for suprapubic cystostomy as soon as the diagnosis is made. This may be done under local anesthesia if the condition of the patient contraindicates the use of other agents. Time should not be consumed in attempting to locate and repair the site of extravasation for the cystostomy tube and a small penrose drain on either side of the bladder will provide ample drainage to allow the primary lesion to close. The drains may be removed in 72 hours and the cystostomy tube removed at the end of six days, providing drainage is assured by indwelling urethral catheter for a period of 10-14 days postoperatively.

The following tables summarize briefly six cases of surgical injury to the urinary bladder, four of which were recognized and treated at the time of occurrence.

CHART NO. 4

Bladder Injuries Recognized at the Time of Surgery

Patient	*Diagnosis*	*Operation and Findings*	*Injury to Bladder*	*Treatment*	*Post-op. Course*
A.M.	Fibroid uterus	Total abdominal Hysterectomy	Entered while incising peritoneum	Primary closure with interrupted chromic gut—8 days cath. drainage	Uneventful—Dismissed on 12th Post-op. day
J.D.	Premature Labor	Cesarean section	Laceration of dome of bladder	Primary closure with interrupted chromic gut—8 days cath. drainage	Uneventful—Dismissed on 14th Post-op. day
T.G.	Fibroid uterus	Total abdominal Hysterectomy	1½" tear in bladder	Primary closure with interrupted chromic gut—8 days cath. drainage	Uneventful—Dismissed on 13th Post-op. day
L.B.	Tubo-ovarian abscesses	Total salpingo-Oöphorectomy and total Hysterectomy	"Tear" in bladder	Primary closure with interrupted chromic gut—7 days cath. drainage	Uneventful—Dismissed on 10th Post-op. day

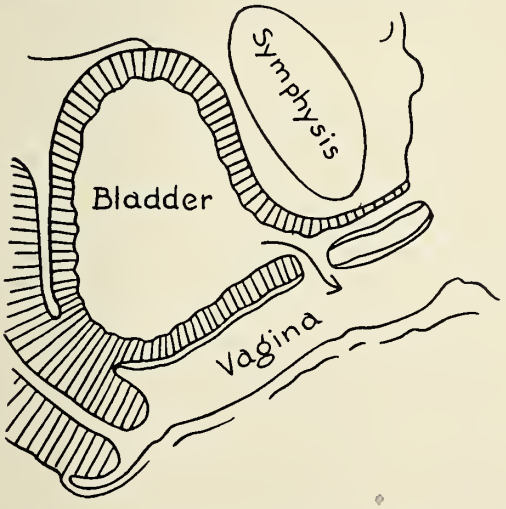
CHART NO. 5

Bladder Injuries Not Recognized at the Time of Surgery

Patient	*Diagnosis*	*Operation and Findings*	*Injury to Bladder*	*Treatment*	*Post-op. Course*
K.A.	Cervical bleeding	Total abdominal Hysterectomy	Vesico-vaginal fistula on 8th p.o. day in trigone	Closure per vagina on 16th p.o. day cath. drainage for 10 days	Repair broke down on 13th p.o. day—Pt. returned in 4 weeks and closure done per vagina
K.S.	Menorrhagia	Total abdominal Hysterectomy	Vesico-vaginal fistula noted on 9th p.o. day in bas-fond	Closure per vagina cath. drainage for 21 days	Repair broke down—Pt. returned in 8 weeks at which time closure per vagina was satisfactory

The foregoing series of cases amply demonstrates that surgical injury of the bladder which is promptly recognized and properly treated is attended by very little morbidity. On the other hand, there are few conditions that can be so exasperating to both patient and physician as the late sequelae of the unrecognized lesions. We shall not attempt to discuss in any detail the treatment of vesico-vaginal fistula. Suffice it to say that a period of at least six weeks should be allowed to elapse before surgical repair is attempted and urinary infection must be combated with antibiotics both pre and postoperatively.

By way of prophylaxis against such injuries as those described above, several simple procedures should be mentioned. An indwelling urethral catheter during surgery guards against distension with encroachment of the bladder into the operative field and prevents extravasation of large quantities of infected urine should the bladder be accidentally opened. Also, the practice of opening the peritoneum near the upper angle of the abdominal incision will occasionally prevent injury to a bladder adherent from previous surgery.[1]



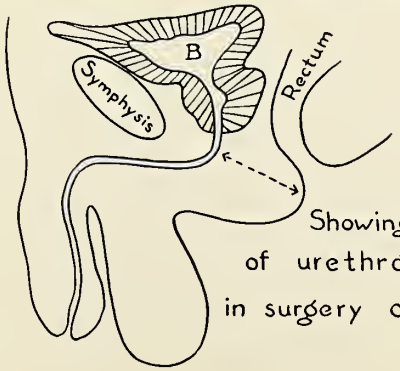
Urethro-vaginal fistula

Surgical Injury to the Urethra

Surgical injury of the urethra, fortunately, is not a common accident. The female urethra, being only approximately three centimeters in length and well protected by the pubic bones, is seldom seriously damaged except in cases of instrument delivery or operative procedures via the vaginal route. The male urethra may be damaged by surgical procedures to the perineum for any cause.

At the University of Kansas Medical Center we have on record two cases of urethral injury resulting from operation for imperforate anus in the newborn. Both of these children developed urinary fistulae requiring temporary cystostomy and periodic urethral dilatations and resulting in severe damage to the upper urinary tracts. In another instance, an adult male developed a perineal urinary fistula following combined abdomino-perineal surgery for carcinoma of the rectum which was densely adherent to the prostate. Panendoscopy revealed a small defect in the floor of the membranous urethra and this closed spontaneously around an indwelling urethral catheter.

Surgical injury of the urethra is almost invariably unrecognized at the time of its occurrence and, in the great majority of cases, results in urethro-



Showing proximity of urethra to rectum in surgery of perineum.

cutaneous fistula with attending stricture of the urethra just distal to the site of fistula formation. Reconstructive repair will often result in subsequent stricture formation at the site but, unfortunately, there is no alternative unless circumstances warrant permanent diversion of the urine by cystostomy. The repair should be done after diversion of the urine by cystostomy, and a splinting urethral catheter is left indwelling. The cystostomy tube may be removed in eight to 10 days. The urethral catheter is removed when the cystostomy wound has closed. The patient usually must return periodically for life for dilatation of the stricture which will form at the site of the urethral surgery.

Summary

The etiology, treatment, prognosis, and prophylaxis of surgical injury of the urinary tract is discussed.

Prompt recognition of the lesion and immediate institution of the proper therapy, including surgical management and adequate chemotherapy, are stressed as factors in greatly reducing morbidity and mortality from these surgical accidents.

A brief review of nine cases of ureteral injury, six cases of bladder injury, and three cases of urethral injury is presented.

Bibliography

1. Holloway, J. H.: Am. J. Ob. and Gyn., 60: pp. 30-40, July, 1950.
2. Rusche and Bacon: J.A.M.A., 114-201, 1940.
3. Ockerblad, N. F.: J. Urol. 57:845-847, May, 1947.
4. Feeney, J. K.: Irish J. Med. Sc., 112-120, March, 1948.
5. Sisk, Ira.: S. G. and O., 60:857-860, April, 1935.
6. Newell, Q. V.: Ann. Surg. 109:981-986, 1939.
7. Wilson, J. M.: Urol. and Cut. Rev., 51:71-74, Feb. 1947.

Harelip and Cleft Palate: Modern Trends in Management

David W. Robinson, M.D.*

Kansas City, Kansas

The child born with a cleft defect, harelip or cleft palate, starts life with a considerable structural and functional handicap. Many children with such deformities can be aided to accept a normal station in society, but such restorations require intelligent planning and care. A skillful and individualized plan of therapy will make the difference between a fairly normal citizen or a facial, dental, or speech cripple.

The problem is not a simple one but has many facets. Surgery for the repair of cleft defects, ill-advised or poorly performed, will be the obvious cause of certain later defects. However, techniques have been so refined that a single operation for the repair of the lip is usually adequate[1, 2, 3] and a single operation restoring continuity of the palate produces a good anatomical result.

A follow-up of results by many competent surgeons has proven definite inadequacy of a routine form of treatment. Early closure of the lip, although apparently perfect in infancy or early childhood, too often later shows up such typical secondary defects[4] as the recessed flat lip that is too long; the notching or nodular protuberance of the vermillion; the flattened, lowered, drawn-out, or buckled ala nasi on the affected side; the crooked, asymmetrical, rounded or widened nose; and naso-labial fistulae. The patient, years after "successful" early closure of a cleft palate, frequently is seen for the typical late deformities of severe malocclusion, deformed teeth in a contracted recessed maxillary arch, a concave middle of the face or "dish-faced" appearance, and a tight short palate that does not produce good velar pharyngeal closure. A repaired palate may appear to be anatomically intact and long enough. The nasality in speech, however, may be so evident that even though the patient articulates well as a result of prolonged training or native intelligence and self-training, his defect is immediately obvious to his listeners.

The need for assistance in rehabilitating these children is great. Many consultants may be asked to see the individual child.[5] Not only may he have structural defects still remediable by the plastic surgeon, but his speech may be greatly improved by persistent training given by a trained speech therapist.[6] According to Oldfield,[7] "the main difficulty of the cleft palate patient is the defect in speech."

Dental caries and misshapen misplaced teeth in the contracted maxillary arch require the early services of a general dentist and orthodontist.[8, 9] Such teeth are commonly lost. A dentist trained in prosthodontia can later make an appliance to restore occlusion, to help improve the upper lip's appearance by jutting it forward, and to aid in "plugging" large perforations in the gum, upper labial sulcus,

*From the Division of Surgery, Department of Plastic Surgery, University of Kansas Medical Center, Kansas City, Kansas.

and anterior or posterior palate. In patients where it is indicated, such a prosthodontist can aid in constructing and properly fitting an adequate speech bulb appliance which allows closure of the pharynx around it for good speech.

Problems in hearing are many because these children frequently have multiple nasopharyngeal infections which secondarily produce otitis media and mastoiditis. Enlarged adenoids or tonsils may be responsible in part for this problem. Since removal of these space-filling tissues from cleft palate patients often inhibits speech, recommendation for tonsillectomy and adenoidectomy should be made after studied judgment on the part of the plastic surgeon and otolaryngologist in consultation.

Furthermore, because they do differ from their comrades, many of these children have developed certain psychological abnormalities and tend to be somewhat withdrawn from children of their own age. The services of a trained child psychiatrist may be of value in rehabilitating such children to a more normal behavior pattern.

To complete the program, a very important member of the consulting team is the pediatrician[10] whose aim is to see that the child's general health be appraised and maintained and that the child be treated as a whole, not simply as a patient or case with a cleft defect.

It would seem logical, therefore, that better treatment of these patients could be obtained by the combined teamwork of the above-mentioned specialists whose collective and studied judgment plans therapy. Such a team could study and appraise trends in treatment over the years so that it could draw some valid conclusions as to the best forms of treatment for the various types of deformities. Such an organization has been formed at the University of Kansas Medical Center and is seeing these patients at a regular time each month* on referral from their doctors.

Age of Operation

In general, it had been thought by many that babies with harelips should have their defects repaired as early as possible, providing the child is big enough to stand the surgery. For single cleft lips it was felt that a child should have normal birth weight, seven pounds or more, and for double cleft lips, should preferably weigh nine or 10 pounds. Early operation was advocated to aid in feeding, to help close the alveolar defect by the steady pressure of the gum, and for the psychological benefit to the mother.

Unilateral harelips usually can be repaired during the first few days of life so that the child can go home with the mother and be presented to the family and friends as practically a normal-appearing child. Actually the mortality for single harelip operations is quite negligible.

Surgery for a double cleft lip, however, if done in one stage is of considerable magnitude as it must be remembered that such small babies can lose only a relatively small amount of blood without jeopardizing their lives. It is doubtful that such early operation is warranted and it is rather general thinking now that, if one waits until the child is at least a few weeks old, the results are just as good and the risk to the child less. Some reassurance and explanation must be given to the parents, however, and the child will likely require more than the average amount of supervision by the attending doctor or pediatrician. Such babies may present some mechanical problem of feeding but, on the whole, if nipples with large perforations are utilized or if the babies are placed in the crook of the arm upright and fed out of a cup or small glass, these infants will receive adequate nutrition and will gain promptly. It is true that if one waits a few weeks, they will not have as good hemoglobin content and may be in somewhat more need of a small blood transfusion at the time of operation or shortly thereafter.

The current argument between reconstructive surgeons concerns itself not so much with the lip but with the time for operation on the cleft palate. Statistical evidence of performance from operations of many different techniques carried out at an early age, that is under two years, has been accumulated. There is a definite trend away from early operations on the cleft palate. The two chief detriments to the early operations are (1) inadequate growth of the middle of the face and (2) improper and inadequate speech. From clinical experience with many cases backed up by accurate cephalometric determinations of growth, it has been shown by the studies of Graber,[11] and Slaughter and Brodie[12] that early operations on the palate, even though the soft tissues alone had been shifted and manipulated, caused some interference with the centers of bony growth of the middle of the face.

Such growth studies, although far from completed, have indicated that about five-sixths of the development of the middle of the face has occurred by the age of five years and that only one-sixth of the development occurs after that. Analyses demonstrate that from the various techniques used, the most common being the Von Longenbeck palatal closure, early operation has been responsible for the recessed "dish-faced" appearance of these people who have the typical narrow, contracted, recessed maxillary arch and the shortened immobile palate. This is not universally so, and a fair percentage of

*The last Saturday morning of each month.

the patients with routine type closures in the hands of excellent surgeons have apparently normally developing faces. Adults presenting themselves with unoperated cleft defects[13] demonstrate surprisingly good facial development in contrast to many operated patients. Which type of clefts may be closed early and which late has not been definitely decided, but there is a definite trend toward delaying the operation and increasing the use of early prosthetic appliances for speech therapy.

Speech

The speech mechanism, as it is affected by early or late operation, is the other chief controversial issue in regard to the time of operation. There is a definite school of thought with considerable evidence now to back up its convictions that certain techniques of palatal closure produce a tight scarred palate for which little may ever be done to improve speech in spite of speech therapy. The foremost proponents[8] of this theory think that an obturator should be constructed early for a great number of these young patients with palatal defects and that an obturator with its speech bulb should be adjusted through the developing period of the palate and middle of the face with constant attention to speech therapy and training. These "appliance men" claim that no interference, such as is seen not infrequently following early palate repair, takes place in the development of the middle of the face and that their patients with appliances will have fairly normal faces, as well as good speech with the appliance.

There can be no question but that certain types of palatal clefts have better functional results with the use of obturators. Good speech has been reported from the use of the posterior pharyngeal flap[14, 15] and from the push-back procedure[16] but, although speech has been improved by these operations performed to lengthen the palate secondarily, this author is not overly enthusiastic. Just which of these clefts give the best ultimate functional and structural result by the use of early surgery or mechanical aids and later surgery has not been determined and may not be until after some years when large series have been studied and analyzed.

Arguments that have been presented by those advocating surgery alone as against the early use of appliances for speech are that (1) the obturator is unhygienic, (2) it requires a skilled technician to construct it, (3) constant attention is needed to see that it fits during the growing period, and (4) speech therapy must be continued over a long period of time. Further, this is a very costly method of treatment both from the standpoint of time of the prosthodontist and use of materials. Chief proponents of the appliance school claim that many of the operations apparently anatomically approximating the palate produce a tight scarred palate which can never effect velar pharyngeal closure and good speech.

Conclusions

Obviously we are in a period of change in our thinking about the proper method of therapy for cleft palate patients or, better, the individual patient. More time must elapse before the indications are clear for the type of treatment indicated for the individual patient. Such knowledge can come only through the care of a large number of patients over a prolonged period of time, studying growth development and speech mechanism as well as appearances. It is obvious that team work is needed and that the combined opinions of many specialists including the reconstructive surgeon, pediatrician, speech therapist, prosthodontist, orthodontist, general dentist, child psychiatrist, and otolaryngologist are desired. Skillful analysis after the blending of opinions of various specialists trained to solve theit special problems is surely a proper approach to an unsolved problem which is definitely on its way to solution.

Bibliography

1. Blair, V. P., and Brown, J. B.: Mirault operation for single harelip. Surg., Gyn., and Obs. 51:81-98, July 1930.

2. Brown, J. B., and McDowell, Frank: Small triangular flaps for the primary repair of single cleft lips. Pl. and Reconst. Surg. No. 5:392, 1950.

3. LeMesurier, A. B.: A method of cutting and suturing the lip in the treatment of complete unilateral clefts. Pl. and Reconstr. Surg. 4 No. 1:1-13, Jan. 1949.

4. Kazanjian, V. H.: Collective Review—Secondary deformities of cleft palates. Pl. and Reconstr. Surg. Vol. 8, No. 6:497-489, Dec. 1951.

5. Cannon, Bradford: Plastic Surgery: Harelip and cleft palate. New Engl. J. of Med. Vol. 245, No. 5:179-185; No. 6:215-219, Aug. 1951.

6. Morley, Muriel E.: Cleft palate and speech. E. and S. Livingstone Ltd. Edinburgh, 1951.

7. Oldfield, Michael C.: Cleft palate and the mechanism of speech. Brit. J. of Surg. 35:173-179, Oct. 1947.

8. Cooper, Herbert K.: Cleft palate—dentistry's opportunities. J. of the Am. Dent. Assoc. 42:37-47, Jan. 1951.

9. Conroy, Cecil R.: Three age phases of orthodontic treatment of the cleft palate child. Pl. and Reconstr. Surg. Vol. 7, No. 2:100-114, Feb. 1951.

10. Coursin, D. B.: Treatment of the patient with cleft palate. Am. J. Dis. Child. 80:442-453, Sept. 1950.

11. Graber, T. M.: Craniofacial morphology in cleft palate and cleft lip deformities. Surg., Gyn. and Obs. 88:359-369, Mar. 1949.

12. Slaughter, Wayne B., and Brodie, Allan G.: Facial clefts and their surgical management in view of recent research. Pl. and Reconstr. Surg. 4:311-332, 1949.

13. Davis, Albert D.: Unoperated bilateral complete cleft lip and palate in the adult. Pl. and Reconstr. Surg. Vol. 7, No. 6:482-491, June, 1951.

14. Moran, Robert E.: The pharyngeal flap operation as a speech aid. Pl. and Reconstr. Surg. 7 No. 3:202-213, Mar. 1951.

15. Conway, Herbert: Combined use of the push-back and pharyngeal flap procedures in the management of complicated cases of cleft palate. Pl. and Reconstr. Surg. 7 No. 3:214-224, Mar. 1951.

16. Dorrance, G. M.: Cleft palate. Ann. Surg. 117:1-27, An., 1943.

Terminal Bronchiolar or "Alveolar Cell" Carcinoma of Lung: A Case Report*

H. H. Dunham, M.D., and V. G. Smith, M.D.**

Kansas City, Kansas

Terminal bronchiolar, "alveolar cell" carcinoma or pulmonary adenomatosis is a rare disease and in most of the reported cases the diagnosis has been made only by postmortem examination. Weir[1] cites references to three cases in the literature which were diagnosed antemortem on the basis of biopsy examination. This same author has reviewed 36 cases reported in the literature and has added reports on three cases. He has attempted to delineate the clinical picture on the basis of the cases reviewed. Paul and Ritchie[2] reviewed the clinical and roentgenographic characteristics of a series of cases and made the correct diagnosis in one case on the basis of such findings alone.

Good et al[3] reported eight cases in which a positive diagnosis was made by resection of a lobe or an entire lung. They also indicate that cytologic examination of sputum or bronchial secretions may offer a definite diagnosis in some cases.

Papanicolaou in a personal communication quoted by Smith, Knudtson and Watson[4] and also by Watson and Smith[5] stated that in the series of cases studied at Memorial Hospital, a large number of malignant cells were recovered in smears of sputum that showed typical cytologic changes of cancer. One of the more specific changes noted was the presence of multi-nucleated giant cells which are rarely seen in other types of carcinoma of lung. He implies the possibility that these cells are of specific diagnostic value in this lesion.

There is no record of this diagnosis at the University of Kansas Medical Center prior to August, 1951.† This paper is presented for the purpose of reporting such a case. We do not attempt to present an exhaustive review but shall discuss briefly the clinical, radiographic, and pathologic features.

Clinical Features

Weir[1] has presented perhaps the most exhaustive study of the clinical aspects of this condition. He indicates that 83 per cent of the 36 cases he reviewed were above 40 years of age. He found no occupational relationship to the malady. In general no consistent antecedent disease is reported. Cough is the most constant symptom. The cough may be dry at the onset, but later is likely to become productive of a profuse watery or frothy sputum. Indeed, the copious production of thin watery sputum is apparently a feature which is suggestive of the condition. Hemoptysis is not common and generally amounts to streaking only. Dyspnea is likely to be a prominent and not necessarily a terminal feature.

Loss of weight is common and weakness may be a prominent feature. Fever is not characteristic and when present probably indicates a complicating bronchopneumonia. Clubbing of the fingers appears to be exceptional; cyanosis is frequent as a late manifestation. The general appearance of the patients remains good, as a rule, until late in the disease. Physical examination of the chest, in most patients, shows signs of partial consolidation of the lung tissue.

Paul and Ritchie[2] stress dyspnea and cough productive of thin, watery, frothy, or mucoid sputum as outstanding clinical features in their cases. They also find hemoptysis an unimportant symptom. King and Carroll[6] are in essential agreement with other authors cited as regards the clinical picture.

Most authors regard the disease as uniformly fatal, but Good et al[3] make the reservation that surgical excision of a localized lesion may offer hope of cure. The latter group admits, however, that it is too soon to justify such a conclusion.

Roentgenologic Characteristics

Weir[1] has described the roentgenologic features as reported for 33 cases which he reviewed. He describes two general types of findings. In one type the shadows consist of multiple, small, irregular, nodular densities along with larger areas of density. In the other type single large areas of density are described which are segmental or of lobar magnitude or may involve an entire lung. Hilar adenopathy does not appear to be a sign, and cavitation is unusual. The picture changes progressively but slowly as a rule.

Paul and Ritchie[2] agree that roentgenographic features fall into the two general types mentioned above. Paul and Juhl[7] point out that if the case is seen early the lesion is limited to one lung. They

*From the Department of Radiology and Pathology-Oncology, University of Kansas School of Medicine.

**Trainee, National Cancer Institute.

†Gibson, reporting a series of 120 autopsied cases of carcinoma of lung from the University of Kansas Medical Center, described one case which had previously been diagnosed adenocarcinoma which he felt could be included in this group of tumors.

describe the most common shadow as a homogeneous increase in density occupying less than a single lobe. The size of such an opacity varies considerably and the boundaries are ill-defined. It is said to simulate a patch of pneumonic infiltration. They state further that atelectasis is not a feature but in a few instances cavitation is noted. In cases coming to autopsy, involvement of lung tissue has been found in areas where disease was not roentgenographically detectable.

King and Carroll[6] state that the disease is usually extensive and involves a considerable part of both lungs when the patient first comes for examination. They also, however, describe two types of roentgen patterns as outlined above. They stress the importance of serial roentgen examinations and state that roentgen findings on a single film are not characteristic and therefore not diagnostic. Good et al[3] describe the radiographic features in about the same terms as the other authors cited.

Pathology

Two distinct morphologic types of alveolar cell carcinoma are known to exist. The first, described originally in 1876 by Malassez,[8] is diffusely nodular in form and is the more common of the two. The second, described by Musser[9] in 1903, constitutes the diffuse form which may often be lobar in distribution or affect the entire lung and may closely resemble the stage of gray hepatization of lobar pneumonia. This is the rarer type.

It was felt justified to report this case in the literature since it fulfilled the original criteria set down by Cassili and White[10] and later much simplified by Swan[11] for diagnosis of alveolar cell carcinoma.

1. No primary tumor could be found elsewhere in the body.
2. No primary tumor could be demonstrated in the bronchial tree.
3. The tumor must be multicentric with areas of uninvolved parenchyma separating the malignant nodules.
4. The neoplastic cellular process must be confined to the alveolar spaces.
5. The interstitial framework of the lungs, except for lymphatic vessels, must be generally free of the process.
6. The anatomy and histology of the nodules must be unlike any other primary lung process.

Swan condensed this into three major premises.

1. Proliferation of mucous secreting high columnar cells lining the alveoli.
2. Absence of a primary lung tumor in any principal bronchus.
3. Absence of a possible primary cancer focus in the rest of the body.

Case Presentation

This 64-year-old white male was admitted to the University of Kansas Medical Center on August 6, 1951, and expired 13 days following admission. His chief complaint had been dyspnea of three weeks duration with orthopnea, chronic cough, and hemoptysis of about two weeks duration. These symptoms were associated with progressive weakness and fatigability for about two months prior to admission, at which time he noticed a slight fatigability which became progressively worse. At approximately this time he also noted anorexia, headache, and malaise. For two weeks he had been coughing up pink-tinged sputum. He had also noted tightening or constricting sensations across his upper chest. One week prior to admission to the hospital he noted several episodes of well circumscribed pain just to the right of the sternum in the second and third interspaces.

Physical examination revealed a well developed, well nourished white male appearing to be approximately the stated age. The pupils were round and equal and reacted to light and accommodation. Extra-ocular muscles showed physiological responses. Fundi were poorly visualized. The thyroid was not palpable nor were neck masses felt. Chest inspection revealed the excursions to be shallow but equal bilaterally. Rhonchi and moist rales were heard on both inspiration and expiration on the right side posteriorly. An area of dullness to percussion was noted over the right middle lobe. The heart was negative. Blood pressure was 130/85. The abdomen revealed nothing unusual. Genitalia were not remarkable. A one-plus pitting edema was noted in both feet and ankles.

Laboratory findings: urinalysis revealed an acid reaction, specific gravity of 1.024, albumin present as a trace, and sugar slightly positive. There were 9 to 10 pus cells per high power field. A red blood cell count showed 4,780,000, Hb 77 per cent (12 grams), a white blood count of 9,000 and a differential of 77 polys, 22 lymphs, one monocyte and one nucleated red cell per 100 white cells. Serology was negative. NPN was 47 mgm. per cent, creatinine was 1.5 mgm. per cent, sugar was 80 mgm. per cent, Na was 146 meq., potassium 4.6 meq., carbon dioxide combining power was 24.4 meq., serum chloride was 102 meq., cholesterol 195 mgm. per cent with 57 per cent esters. NPN on August 11 was 33 mgm. per cent, sodium 134 meq., potassium 4.7 meq., serum chloride 89 meq. On August 14, 1951, the CO_2 combining power was 26.1. Total proteins were 5.88, albumin 3.91, globulin 1.89. Acid phosphatase .55 units, alkaline phosphatase 1.0 milli mol. units.

Tuberculin, histoplasmin, blastomycin and coccidioidin skin tests were all negative. Routine ag-

glutinations including typhoid O and H, paratyphoid A and B and Brucella were negative. Blood cultures were negative. Sedimentation rate was 20 mm. in one hour. Bone marrow examination was reported as normal marrow tissue. Electrocardiogram revealed sinus tachycardia with a rate of 140, T waves were considered to be at the upper limits of normal in size, consistent with auricular dilatation and hypertrophy.

X-ray of the chest revealed a widespread infiltrative process. The Radiology Department at this time suggested the radiological resemblance between the chest film on this patient (Figure 1) and numerous

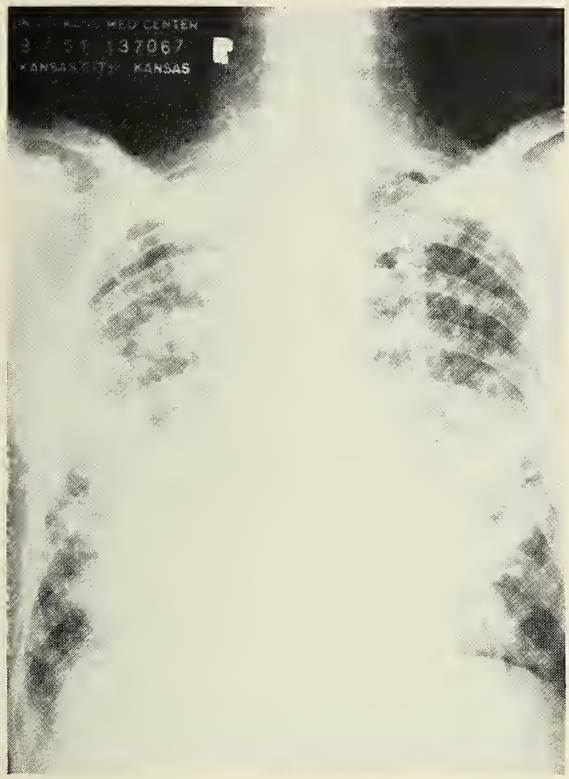


Figure 1. X-ray film. Routine chest film on admission showing diffuse nodular involvement bilaterally with areas of consolidation.

chest films published in the literature illustrating alveolar cell carcinoma and/or pulmonary adenomatosis. Appropriate x-rays failed to reveal evidence of a primary neoplasm in either the gastro-intestinal or genito-urinary tract. Examination of the sputum with the Papanicolaou technic revealed atypical cells, felt to be definitely carcinoma (Figure 2). Hospital course was that of progressive decline with death occurring on August 19 after extreme respiratory distress had been noted for some time.

Anatomical Findings

The body was autopsied approximately three hours postmortem. Examination of the body revealed a male of approximately the stated age in fair

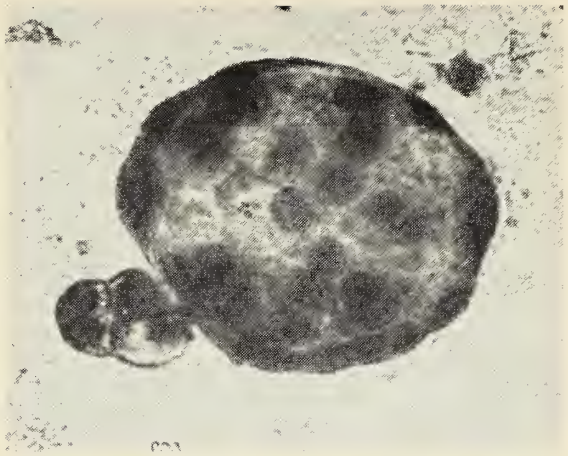


Figure 2. Sputum cytology. Note "characteristic" multinucleated giant cell form. To the left are three cells, one of which shows beginning signet ring formation.

nutrition, approximately 5 feet 11 inches in height and weighing about 170 pounds. Superficial examination revealed a four-plus pitting edema of the lower extremities and a rather deep cyanosis of the face, upper part of the thorax, nail beds and lips. The right pupil was two times greater in size than the left pupil.

Examination of the thoracic cavity presented several interesting findings. Approximately 1000 cc. of straw colored fluid was present in the right pleural space and an equal amount in the left. The pleural surfaces were mottled and both lungs were voluminous and entirely filled the pleural cavities. The lungs were grossly involved by tumor nodules varying in size from a few millimeters up to one-two cm. in diameter. A tendency for coalescence was noted. These nodules were visible through a slightly opalescent pleura. The visceral pleura showed focal thickening and adhesive tabs over the apices of both lungs. The peribronchial and para-



Figure 3. Lung, cut surface. Note widespread miliary-like nodules in left lung. Paratracheal and peribronchial lymph nodes in the right lung. Large node at upper portion of specimen is a paratracheal node.

tracheal lymph nodes were enlarged and almost completely replaced by tumor tissue (Figure 3). Careful dissection of main stem bronchi and the smaller branches outward to the periphery of the lung revealed no intrinsic bronchial lesion to account for the tumor masses in the lung parenchyma. Often intervening lung tissue without tumor involvement was noted. The pulmonary vessels were not remarkable. The remainder of the autopsy failed to reveal a primary neoplasm which might account for the presence of multiple bilateral pulmonary nodules.

Other gross findings were non-contributory. A careful search was made in the gastro-intestinal tract and in other possible sites for a primary neoplasm, but none was found. There were no nodules or tumor masses noted in the area of the thyroid gland. This gland was not removed, however. A head examination was not permitted. No other metastatic lesions were found in any organ except hilar and paratracheal lymph nodes. The anatomical diagnosis at the time of autopsy was alveolar cell carcinoma of lung with metastases to hilar and paratracheal lymph nodes.

Technic

The bronchi were dissected very carefully peripheralward to a point where the scissor tips could no longer enter a lumen. Following this, numerous sagittal and coronal sections of the entire lung were made at one and two cm. intervals. Any nodules seen to involve a small bronchus were sectioned. No evidence of bronchiolar origin of this tumor was found. Periodic acid, Schiff, and Best's mucicarmine stains were applied to several sections in an attempt to demonstrate mucin production. Reticulum stains were done also to demonstrate the relationship of tumor to stroma (Wilder technique).

Histological Pathology

The microscopic studies revealed a striking picture (Figure 4) entirely different from that seen in the usual bronchogenic carcinomas. The lesion was composed of numerous small nodules containing somewhat distended alveoli which were lined predominantly by a tall columnar epithelium. Frequently cuboidal epithelium was noted, and often this was several cell layers thick. This epithelium was non-ciliated. Often a rather marked tendency to papillary formations was seen. The cell cytoplasm was abundant and eosinophilic. The cell borders were well defined. The nuclei generally were vesicular, ovoid, sometimes irregular in outline and tended to be basically placed. Often nucleoli were seen. Hyperchromatic nuclei were not uncommon. There was no marked degree of intracytoplasmic vacuole formation. Periodic acid, Schiff, and Best's mucicarmine stains together with positive controls revealed only a small amount of intra- and extracellular mucin formation. Most of the alveoli were distended and almost completely filled with sloughing, desquamating tumor cells lying free in the lumen. It was in these instances that numerous "characteristic" signet ring cells and multinucleated giant cell forms were seen.

Only occasional mitotic figures were noted. Nuclear pleomorphism was evident in many cases. No stromal desmoplasia of importance was seen, and the tumor cells were usually resting upon very thin delicate strands of interalveolar connective tissue. Many of these septa were ruptured with resultant coalescence of the tumor masses.

Another and more interesting feature was the



Figure 4. Low power. Note typical adenomatous pattern with papillary formation and alveoli lined by tall columnar cells. Note alveolus at top left filled with desquamating tumor cells.

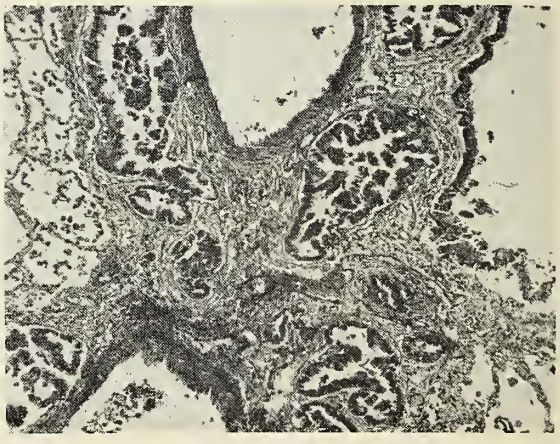


Figure 5. Low power. Note normal bronchus to right and normal lung tissue to the left. Massive lymphatic invasion in perivascular channels by tumor cells.

massive perivascular lymphatic involvement (Figure 5). Constantly, nests of tumor cells were noted in the lymphatic channels particularly along the pulmonary arteries. The hilar and paratracheal lymph nodes showed complete architectural destruction and replacement by tumor with marked desmoplasia. This tumor tissue had taken on a considerable degree of anaplasia.

Stromal inflammation was minimal.

No microscopic evidence was found of metastatic lesions in other organs.

Discussion

Few investigators will deny that alveolar cell tumors exist as a clinico-pathologic entity with definite morphologic patterns. We feel that a rather definite clinical pattern is present. However, this is not the important controversial point. The controversy revolves around the purely academic question of the histogenesis of these tumors. It is not within the realm of this paper to enter into a detailed discussion of this point since this is merely a case report. However, we feel that a brief recapitulation of the arguments is necessary.

Many authors contend that all primary carcinomas of the lung are bronchial in origin. For example, Fried,[12] Herbut[13, 14] and Ikeda[15] feel that all lung cancer is bronchial in origin and arises from small totipotential basal cells beneath the ciliated epithelium which then stream out into the stroma. Others, among them Miller,[16] feel that there is a continuous epithelial lining in the alveoli from which these tumors arise. This view is supported by observations on lungs in cases of bronchiectasis, tuberculosis or any chronic pulmonary infection. Herein, one may see with regularity remarkable epithelial cell proliferation very similar to that seen in so called alveolar cell carcinoma. The majority of people today hold with Miller's views.

Another new and interesting finding was recently reported by Gepts[17] in Belgium in studying an autopsied case. Careful study revealed what he described to be structural bronchiolar abnormalities in the form of small diverticula lined by mucus secreting columnar cells. He feels that this could explain the multicentric origin of this tumor on the basis of the observation that malignancy is commonly seen in embryonic abnormalities. However it is difficult to visualize many bronchiolar diverticula scattered throughout the lung. As was shown by Maximow and Bloom,[18] a few alveoli bud off from the sides of the respiratory bronchioles opposite that along which the branch of the pulmonary artery runs.

Further, as was pointed out by Smith, Knudtson and Watson,[4] and Knudtson and Watson,[5] the lymphatic spread along vessels is rather striking, and they suggest that the multiple nodules found in both lungs may well represent intrapulmonic metastases via the lymphatics, implying, perhaps, that there may be an original, single primary site of origin and that the lymphatic spread may be so rapid as to give the picture suggesting multicentric origin.

The subject of the relationship of this lesion herein described to the so-called pulmonary adenomatosis of sheep or Jaagsiekte was purposely omitted since there are many fine discussions of this in the literature; also, the similarity of this lesion to many chemically induced tumors of lung in the guinea pig and the mouse is not discussed. We feel that there may be a benign lesion (so called pulmonary adenomatosis) in man and that alveolar cell carcinoma is the end stage. Possibly this accounts for some of the successful surgical resections reported by Watson and Smith.[5]

Summary

1. We have reported a case of what is variously described in the literature as pulmonary adenomatosis, terminal bronchiolar or alveolar cell carcinoma. The present case appears to be similar to previously reported cases in all important respects.

2. We have attempted to emphasize the importance of adequate clinical, radiological and cytological examinations.

3. The morphology and histogenesis of this disease process is discussed briefly.

References

1. Weir, A. B., Jr.: Pulmonary Adenomatosis, Arch. Int. Med., 85:806-818, (May) 1950.
2. Paul, L. W., and Ritchie, G.: Pulmonary Adenomatosis, Radiology 47:334-343 (Oct.) 1946.
3. Good, C. Allen, McDonald, J. R., Clagett, O. T., and Griffith, E. R.: Am. J. Roentgenol. and Rad. Ther. 64:1-18 (July) 1950. Alveolar cell tumors of the lung.
4. Smith, R. R., Knudtson, K. P., and Watson, W. L.: Terminal Bronchiolar or "Alveolar Cell" Cancer of the Lung. A report of 20 cases. Cancer 2:977-989, 1949.
5. Watson, W. L., and Smith, R. R.: Terminal Bronchiolar or "Alveolar Cell" Cancer of the Lung. Report of 33 cases. J.A.M.A. 147:7 (Sept. 1) 1951.
6. King, J. C., and Carroll, David S.: Pulmonary Adenomatosis, Radiology: 669-680 (Nov.) 1950.
7. Paul, L. W., and Juhl, John H.: Pulmonary Adenomatosis: Further Roentgen Observations, Radiology 55:681-691 (Nov.) 1950.
8. Malassez, L.: Examen histologique d' un cas de cancer encephaloide du pounon (epithelioma), Arch. de physiol. Noru. et path. 3:353-372, 1872.
9. Musser, J. H.: Primary Cancer of the Lung, Tr. A. Am. Physicians 18:624-636, 1903.
10. Cassili, A. R., and White, H. J.: Rare Forms of Primary Malignant Lung Tumors, Am. J. Clin. Path. 10:623, 1940.
11. Swan, L. L., Pulmonary Adenomatosis of Man, Arch. Path., 47:517 (June) 1949.
12. Fried, B. M.: Primary Carcinoma of the Lung: A Clinical and Pathological Study. Medicine 10:4,373-508 (Dec.) 1931.
13. Herbut, P. A.: Bronchiolar Origin of "Alveolar Cell Tumor" of Lung. Am. J. Path. 20:911-929, 1944.
14. Herbut, P. A.: "Alveolar Cell Tumor" of the Lung; Further Evidence of its Bronchiolar Origin. Arch. Path. 41:175-184, 1946.
15. Ikeda, K.: Alveolar Cell Carcinoma of Lung. Am. J. Clin. Path. 15:50-63, 1945.
16. Miller, W. S.: The Lung, 2nd Edition, Springfield, Illinois, Chas. C. Thomas, 1947.
17. Gepts, W.: Pulmonary Adenomatosis, Report of a Case Demonstrating Peculiar Histological Changes in Certain Bronchioles. Arch. Path. 52:473-479, 1951.
18. Maximow, A. A., and Bloom, W.: Textbook of Histology. 4th Edition, W. B. Saunders Co., Philadelphia, 1942.

Two Attacks of Endocarditis Caused by Different Microorganisms

Joe L. Stockard, M.D.*

Kansas City, Kansas

Introduction: A recent review of 44 cases of subacute bacterial endocarditis, all of which were proved by blood culture, revealed that with the exception of the case presented below, none had a recurrent infection with any organism other than that causing the original infection. For that reason we feel this case should be reported. It emphasizes the importance of identifying the infecting organism in both the original infection and in each recurrence.

J.M., age 52, was first seen with symptoms of cardiac disease in July, 1947. He entered the hospital on that occasion with the complaint of a slow pulse of 24 hours duration. On five previous admissions the patient had shown no cardiovascular abnormalities. An electrocardiogram in February, 1947, had revealed only slight prolongation of the QRS complexes. The rate on this tracing was 88 per minute.

Past History: He had had a migratory arthritis in 1933. The patient's history of this illness was characteristic of acute rheumatic fever. Otherwise the past history was essentially negative.

Physical examination on this admission revealed temperature 98.6° F., pulse 48 and regular, blood pressure 145/70, height five feet nine inches, weight 190 pounds. Examination of the head and neck was negative. Cardiac dullness was not increased. No thrills were felt, but the heart sounds were distant, A2 being very faint. A harsh grade III systolic murmur was heard over the entire precordium but was loudest at the apex. The chest was clear to auscultation and percussion. Except for moderate obesity, the remainder of the physical examination was negative.

Laboratory findings: Rbc. 4,400,000; Hb. 13 gms; Wbc. 8,150; polys. 63 per cent, lymphs 29 per cent. Urine: negative. The electrocardiograms at this time showed a sinus bradycardia with a rate of 48 and a first degree A-V block, the P-R interval being 0.28 seconds.

The patient had no signs or symptoms of heart failure at this time and was dismissed from the hospital without medications. He remained in good physical condition until March, 1948, when moderate dyspnea developed. Examination at that time revealed a harsh grade III systolic aortic murmur and numerous premature contractions. An EKG revealed a rate of 60, frequent premature ventricular contractions, and complete A-V dissociation.

Re-examination in April revealed aortic systolic and diastolic murmurs. The bradycardia and prematurities persisted.

In July, 1950, the patient first noted a low grade afternoon fever. He thought little about this until the latter part of September when, following an upper respiratory infection, the fever increased to a daily elevation of 101-102° F. and was associated with chills and night sweats. He was admitted to the University of Kansas Hospital in November, 1950. Dyspnea was marked at this time.

Physical examination revealed temperature of 100.8° F., pulse 80, blood pressure 140/70, weight 174½ pounds, height 68½ inches. The head and neck were negative. The lungs were clear to auscultation and percussion. The heart was slightly enlarged to the left on percussion. Auscultation revealed grade III aortic systolic and diastolic murmurs. These had remained essentially unchanged. An occasional premature contraction was noted. The patient had a typical Corrigan pulse. No splinter hemorrhages or Osler's nodes were present.

Laboratory findings: Rbc. 3,580,000; Hb. 10.6 gms; Wbc 11,650; polys. 77 per cent; lymphs 19 per cent, eosin three per cent, mono three per cent. Urinalysis: reaction acid; sp. gr. 1.011; heavy trace of albumin; sugar negative; microscopic showed numerous hyaline and granular casts, pus and red blood cells per low power field. Serology was negative. NPN 29 mgm. per cent, creat. 1.2 mgm. per cent, sugar 87 mgm. per cent. The EKG at this time revealed a first degree A-V block with a P-R interval of 0.32 seconds. The rate was 79. During the first four days of hospitalization 10 positive blood cultures were obtained. The organism was a *Streptococcus mitis.* It was found to be sensitive to 0.005 u penicillin/cc.

Hospital Course: On November 9, 1950, he was started on aqueous penicillin, 125,000 units every six hours. He became afebrile on the first day of therapy and remained afebrile thereafter. He showed considerable symptomatic improvement. The dyspnea became much less marked. No change was noted

*From the Department of Internal Medicine, University of Kansas School of Medicine.

in the heart murmur during this period of therapy. Twenty-five subsequent blood cultures were negative. After 60 days of penicillin therapy, he was dismissed.

Following this dismissal he remained asymptomatic for six months. He again developed marked exertional dyspnea in June, 1951. About one month prior to re-admission he first noted paroxysmal nocturnal dyspnea. Digitalization failed to alleviate these symptoms and the patient was admitted to the University of Kansas Hospital on September 10, 1951.

Physical examination on this occasion revealed blood pressure 190/50, pulse 52 and regular, temperature 100.8° F., respiration 24, weight 179, height 68¾ inches. The patient was markedly dyspneic. The head and neck were essentially negative. Percussion of the chest was negative, but auscultation revealed moist rales throughout both lower lobes. The size of the heart was unchanged. The intensity of the aortic diastolic murmur was increased. The abdomen was negative. There was one-plus pitting edema of the ankles.

Laboratory findings: Rbc. 3,820,000; Hb. 11.1 gms.; Wbc 7,550, polys. 69 per cent, lymph 20 per cent, eosin three per cent, mono eight per cent. Urinalysis: reaction acid; sp. gr. 1.018; alb. three plus, sugar negative; Microscopic showed an occasional hyaline cast, 2-4 plus, 4-6 rbc's/hpf. Serology was again negative. NPN 60 mgm. per cent, creat. 2.3 mgm per cent, sugar 100 mgm. per cent. The EKG at this time revealed a rate of 60, frequent ventricular premature contractions, and A-V dissociation. Blood cultures on September 10, 11, and 12 were positive for a hemolytic staphylococcus aureus. This organism was sensitive to streptomycin and chloromycetin. It was resistant to penicillin, aureomycin and terramycin.

Hospital Course: It was our initial impression that this patient had a recurrence of the *Streptococcus mitis* subacute bacterial endocarditis associated with moderately severe cardiac decompensation. On September 15, 1951, he was started on aqueous penicillin 125,000 u every six hours. No symptomatic improvement was noted. Additional therapy included a low salt one to four Gm. sodium chloride daily 1200 caloric diet, aminophyllin suppositories, and digitora gr. 1.28 daily. When we found that the organism on this occasion was a hemolytic *Staphylococcus aureus,* the pencillin was increased to 300,000 u every three hours, and streptomycin 1.0 gm. b.i.d. the first day and 0.5 gm. b.i.d. thereafter was added to the regimen. The digitalis was discontinued. On this therapy symptomatic improvement was rapid, the patient feeling much improved within 72 hours. This therapy was continued from September 22, 1951, until his dismissal October 18, 1951. During this period his chest had cleared completely. His weight dropped from 179 pounds on admission to 150 pounds on dismissal. His last EKG taken on September 21, 1951, showed a first degree A-V block with a P-R interval of .29 seconds. The rate was 75. No premature contractions were present.

Discussion: In the pre-antibiotic era, the mortality associated with the initial attack of subacute bacterial endocarditis was nearly 100 per cent.[1] With the advent of the sulfonamides this dropped to approximately 98 per cent.[2] In Major's[3] series, 15 patients were treated with sulfonamides. Of these 26.6 per cent recovered. Still greater improvement in therapy was noted when, with penicillin, the mortality dropped to 25 per cent. Adequate time has not yet passed for evaluation of the newer drugs and the synergistic actions now available. Obviously these therapeutic triumphs have done away with the greatest difficulty in the treatment of this disease.

However, this therapeutic success creates new problems. These fall into the following general categories: (1) Residual valvular damage leading to congestive heart failure, (2) Inadequate initial therapy resulting in recurrence and increased resistance of the organism, (3) Recurrence due to an entirely different organism.

The patient presented above represents an example of the third situation. His initial infection with *Streptococcus mitis,* most benign of the *Streptococcus viridans* group, was easily cured with relatively small doses of penicillin. The recurrence of the infection with a hemolytic *Staphylococcus aureus* presented quite a different therapeutic problem. This organism was resistant to penicillin but was sensitive to streptomycin. On a combination of penicillin and streptomycin, the blood stream became sterile and has remained sterile to the present time. Had it been assumed that the recurrence was due to *Streptococcus mitis,* the outcome probably would have been very different.

It therefore is important in the treatment of this disease to isolate the infecting organisms with each attack of subacute bacterial endocarditis.

Friedberg[4] mentions one case of subacute bacterial endocarditis in which the infecting organism was different in each of three attacks. All three infections were successfully treated. Wollack and Pomerantz[5] describe a case in which the initial infection was due to a *Stapholococcus aureus* but three recurrences were due to a diphtheroid. The latter were successfully treated with penicillin and bacitracin.

Of some interest is the changing character of

this patient's A-V conduction. One can only speculate regarding the onset. This may well have been due to a recurrence of the rheumatic state. However, the dramatic change which occurred following the treatment of the recurrent infection led us to believe that at that time the infection itself was a contributory cause. The last EKG taken on January 7, 1952, shows a P-R interval of 0.22 seconds. Improvement in A-V conduction during treatment of subacute bacterial endocarditis has been noted by Friedberg.[6] He states that it occurs in approximately 15 per cent of the cases of subacute bacterial endocarditis.

Conclusions

1. Recurrence of subacute bacterial endocarditis may be due to different organisms.

2. The organisms should be identified in each attack of subacute bacterial endocarditis.

I wish to express my appreciation to Dr. Ralph Major for his assistance in the preparation of this report.

Bibliography

1. Seaburg, John H.: Arch. Int. Med. 79:1, 1947. Subacute Bacterial Endocarditis, Experiences in the Past Decade.

2. Libman, E., and Friedberg, C. K.: Subacute Bacterial Endocarditis: New York, Oxford University Press. 1948 2nd edition.

3. Myers and McKinley: The Chest and the Heart Vol. II: Thomas Co., Springfield, Ill. Page 1630.

4. Friedberg, C. K.: W. B. Saunders Co., Philadelphia and London, 1949, page 777.

5. Wollack, R., and Pomerantz, N.: A.M.A., Arch. Int. Med. 88:840. Combined Antibiotic Therapy: Report of a Case of Subacute Bacterial Endocarditis Reinfected with a Diphtheroid and Successfully Treated with Penicillin and Bacitracin.

6. Friedberg, C. K.: Diseases of the Heart, W. B. Saunders, Philadelphia and London, 1949, page 789.

Intravenous Avertin: A Preliminary Report

Roger W. Bumgarner, M.D., Richard L. Pokorny, M.D., Ernst T. Morch, M.D., and Paul H. Lorhan, M.D.*

Kansas City, Kansas

Tribromethyl alcohol or avertin was first reported in 1923 by Willstätter and Duisberg[1] of Germany. Eichholtz[2] recognized its anesthetic properties in 1927 and administered it rectally for anesthesia. The following year rectal avertin became very popular in Germany and in 1929 "avertin fluid" was marketed for rectal use and universally accepted.

The Council on Pharmacy and Chemistry of the American Medical Association accepted avertin as a basal anesthetic in 1937.[3] They stated that more than 700 references on avertin had appeared in the literature and the majority were favorable regarding its use as a basal anesthetic agent. It was felt that the toxic effects observed in the early clinical reports were due to overdosage and poor knowledge of the contraindications.

Avertin intravenously was first used by Kirschner[4, 5] of Germany in 1929. He used a three per cent concentration in saline and later in a five per cent solution of calarose. He administered a predetermined dose calculated from body weight and reported on 750 cases with a three per cent incidence of venous thrombosis. Freinstein[6] used a three per cent solution of intravenous avertin in 570 cases. Avertin was the sole agent for 180 minor cases, and for the remainder it was used as induction to ether anesthesia. Martens[7] frequently observed cyanosis and venous thrombosis in a series of 310 cases. Niemann[8] gave 250 intravenous avertin anesthesias, nine of which were for Cesarean sections, and in all cases the child was depressed. Thornton and Rowbotham,[9] while with a maxillo-facial surgical unit of the British Army during World War II, used one per cent avertin in five per cent dextrose. They preferred its use to pentothal sodium especially when intubation was necessary, because of a lesser incidence of laryngospasm. Furthermore, avertin patients could be intubated earlier when the larynx had been previously cocanized. Evans[10] states, "In the case of avertin the period of recovery is very frequently further complicated by great restlessness, such as requires two people to keep the patient in bed." For this reason, plus the respiratory depression, "it found no permanent place as an intravenous anesthetic."

Chemistry and Pharmacology

Avertin is a white crystalline powder with a melting point of 80° C. The structural formula is that of ethyl alcohol with three bromine atoms substituted on one of the carbon ($CBr_3 CH_2 OH$) atoms. Aqueous solutions are prone to decompose, forming hydrobromic acid and dibromacetaldehyde. Contrary to other investigators, Parsons [11] found that avertin does not decompose readily when exposed to light and air at room temperature, having kept solutions under those conditions for as long as three months without evidence of decomposition. However, he recommends mixing the solution just prior to use. It is marketed under the name of "Avertin with Amylene Hydrate" as a solution of

*From Department of Anesthesiology, University of Kansas Medical Center, Kansas City, Kansas.

tribromethanol with one gram of tribromethanol and 0.5 gram amylene hydrate in one cc. of the solution.

Sollman[12] stated that amylene hydrate renders avertin more soluble but also modifies its action, in itself being a narcotic, by increasing the depth and duration of anesthesia, and is additive to respiratory depression. Barlow and Duncan[13] are of the opinion that amylene hydrate contributed little to the narcosis but somewhat more to the respiratory depression.

Conflicting statements concerning the pharmacological physiology are found in the literature. The pertinent facts are as follows:

1. Narcotic effects: Avertin depresses the diencephalon and its action also extends to cortical centers.[12]

2. Respiration: In full anesthetic doses, rectal avertin depresses the respiration and respiratory arrest is prone to occur. When used in "proper doses" is rarely causes respiratory depression. Avertin produces marked relaxation of the jaw muscles and the airway is easily obstructed. This must be guarded against.[14]

Using rectal avertin, Wood[15] reported "the respiratory center may frequently be affected, the respirations may decrease in number but usually are slightly increased and become shallow in excursion."

3. Circulation: With rectal avertin there is an early, transient fall in blood pressure averaging about 25 mm. mercury. Occasionally, as in hypertension, the systolic pressure may drop as much as 100 mm. mercury. This lowered blood pressure lasts for 5-15 minutes and is rarely dangerous. The hypotension is thought to be due to the depressant action of avertin on the medullary vasomotor centers, as well as some degree of direct action on the heart and blood vessels. Avertin further sensitized the heart to epinephrine irregularities.[12] The coronary arteries are dilated, the force weakened and rate slowed with resulting cardiac dilatation and fall in blood pressure.[11]

4. Gastro-intestinal: The motility of the gastro-intestinal tract is markedly depressed by doses of avertin having a slight hypnotic action.[16]

5. Genito-urinary: Due to the fall in blood pressure, urinary output is decreased for as long as two hours following avertin administration. Urea output is decreased. Hemorrhagic nephritis and albuminuria are occasionally seen.[12] Kirschner,[5] using three per cent avertin normal saline intravenously, observed hematuria in a few cases but saw no hematuria when he changed to a three per cent solution in five per cent dextrose. Pitt[17] stated, "In spite of the conditions which tend to hamper renal function during anesthesia, nitrogen excretion is actually very little upset by the volatile anesthetics and less so by avertin." Renal insufficiency lowers considerably the margin of safety of the drugs.[14]

6. Liver: It is generally agreed that avertin has little effect on the normal liver. One to two per cent show slight impairment of liver function and occasionally a severe hepatitis results.[12]

7. Metabolic: The temperature usually falls, blood sugar is elevated slightly and there is some decrease in the alkali reserve.[12]

8. Relaxation: Muscular relaxation varies with the dose given, being only partial in light anesthesia and marked with doses which produce deep surgical anesthesia. If cyclopropane or ether in small amounts is used as a supplement to a basal anesthetic dose of avertin, adequate relaxation can be obtained.[14]

9. Central nervous system: Avertin lowers the intracranial and intraocular pressure. Most observers feel that this is an advantage in neurosurgery; however, Wood[15] is of the opinion that it should not be used in brain surgery because of its effect on the respiratory center.

10. Detoxification: There are diverse opinions regarding the detoxification of avertin. It is frequently stated that avertin is combined with glucuronic acid in the liver and its detoxification is therefore slowed with impaired hepatic function. However, it has been shown[18] that the liver plays no important role in the coupling of avertin with glucuronic acid. The avertin was coupled and detoxified in the normal time even when the liver was destroyed by ethylenchlorhydrin. It has also been found that an animal starved for several days shows delayed detoxification. This was not a result of low glucose or insulin content, as one or both of these substances do not affect the detoxification.

Avertin is excreted by way of the kidneys, mainly as avertin glucuronate. The bromine remains in the organic molecule and is not ordinarily excreted as the ion.[12] Anschutz[18] reported that excretion begins in 45 minutes, maximum is reached after four hours and in 24 hours most is excreted. Only traces are found after this. Welsch[19] found that 69 per cent was excreted during the first 24 hours and 29 per cent in the next 24 hours.

Analgesia, in the sense of indifference to pain, is present when the patient recovers partial consciousness, and is able to appreciate sensations. After regaining consciousness, patients fall into a quiet but easily rousable sleep lasting several hours.[12]

Preparation for Intravenous Use

Avertin solution, one per cent, as used intravenously is prepared by adding five grams of tribromethanol (five cc. of avertin) to 500 cc. of five per cent dextrose in distilled water. The dextrose solution is first warmed in a water bath to approx-

imately 40° C. Avertin is then added and the mixture shaken vigorously until the avertin dissolves and the solution clears. Avertin will go into solution in the aqueous dextrose at room temperature if it is slowly added (one to two cc. at a time) and shaken vigorously. This requires about three to five minutes. The solution is tested with congo red before administration and used only if the color is pink. It is recommended that the solution be freshly prepared and not used after it has been standing.

Method of Administration

Avertin is administered by the Murphy drip technique, so that between 75 and 150 cc. may be given rapidly (30-90 seconds). Venepuncture is made with an 18-gauge needle. Avertin can be administered rapidly until the desired stage of anesthesia is attained, then the drip is stopped until the patient shows signs of lightening. Then an additional amount of avertin is given rapidly. Following the suggestion of Dr. Brian McGurk,[20] we have been administering the induction dose rapidly, then slowing and adjusting the rate of flow to keep the patient at the desired level of anesthesia; this method, we feel, is more satisfactory.

Summary of Cases

This is a preliminary report of 50 cases in which avertin was used intravenously in a one per cent concentration in five per cent dextrose in distilled water. Avertin was the sole anesthetic agent in 11 cases. Nitrous oxide was used as a supplement in 13 cases. Avertin was used as a secondary agent in the remaining 25 cases. Curare was administered in those cases requiring further muscular relaxation.

Intubation was performed in over 50 per cent of the cases with avertin being selected because intubation was contemplated.

In the series there were 28 males ranging in age from two to 80 years, and 22 females ranging from 18 to 83 years. The duration of anesthesia ranged from 30 minutes to over seven hours. The majority of the cases were for endoscopies although various other surgical procedures were performed, i.e. head and neck, intrathoracic, intra-abdominal, perineal and orthopedic operations.

No serious postoperative complications were noted. Two patients had a mild thrombosis in the veins used for administration. One death occurred in the series. This was a valvulotomy, the patient dying of a pulmonary embolus on the 10th postoperative day.

Discussion

From this small series of cases using avertin intravenously and a review of the literature, we feel that this drug shows promise and that reinvestigation, both experimentally and clinically, is indicated.

In a perusal of the literature, we have found many discrepancies, disagreements and misquotations regarding the pharmacology of avertin. Most of the experimental work was carried out within the first five years following its introduction. As far as we can ascertain, nothing new has been added to the literature since 1935. Many of the investigations have never been confirmed. Clinical studies were postulated on small series, with avertin being given in predetermined doses by the rectal route. Of the several reports of intravenous avertin, all but Thornton and Rowbotham[9] administered precalculated doses according to body weight.

Avertin intravenously was not widely accepted because of its difficulty of preparation, instability in solution, the thromboses it caused, the use of predetermined doses which undoubtedly caused excessive depression, unfamiliarity with endotracheal anesthesia and postoperative excitement.

The one per cent solution is not too difficult to prepare. We have kept it for a period of three weeks without evidence of deterioration as shown by the congo red test. The two cases of thrombosis, in our opinion, were not severe enough to contraindicate its use. In our hands, the continuous Murphy drip technique gives considerable latitude and we have seen no severe depression of respiration or circulation. Contrary to Evans'[10] statement on excitement in the immediate recovery period, our patients have had a quiet serene recovery. The patients seem to have a longer period of analgesia and amnesia than with other agents. Following diagnostic bronchoscopies, the nurses in our recovery suite have pointed out that patients cough much less and it is not the spasmodic type seen following the pentothal-curare technique.

Intravenous avertin was selected because intubation was contemplated. We found, as did Thornton and Rowbotham,[9] that patients can be intubated more safely in lighter planes of anesthesia than with pentothal. With the application of local anesthesia to the base of the tongue and larynx, some have been intubated while responding to vocal commands.

Conclusions

We feel that intravenous avertin will find a place in the armamentarium of the anesthesiologist. It may be indicated in operations on the head and neck, endoscopies, and intubations. Its value in operations requiring muscular relaxation, in neurosurgery, perineal, and orthopedic procedures and in any long operations will have to be determined by trial. Toxicity should carefully be re-investigated. Contraindications must be scientifically determined.

Bibliography

1. Willstater, R., and Duisberg, W.: Bir. duetsch. Chem. Gessellock. 56:2283, 1923.
2. Eichholtz, E.: Deutsche med. Wchnschr. 53:710, 1927.

3. Avertin: Report of Council on Pharmacy and Chemistry. J.A.M.A. 109:952, Sept. 18, 1937.
4. Kirschner, M.: Eine psycheschonende und steuerbore Form der Allgemein-betäubung. Chirurg: 1:673, June 15, 1929.
5. Kirschner, M.: Erfahrungen mit der intravenösern Avertinnarkose. Arch. f. klin. Chir., 162:361.
6. Freinstein, Waldemar: Die intravenöse Avertinnarkose nach. Kirschner. Klin. Wchnschr. 9:742, April 19, 1930.
7. Martens, E.: Erfahrungen über die Anivendung der intravenöse Avertin-infusion nach Kirschner. Zentralbl. fur Chirurgie 58:I; 524, 1931.
8. Niemann, G.: Intravenoser Avertinnausch bei Gynakologischon Eingriffen. Zentrabbl. fur. Gynakologic. 54:III 2826, 1930.
9. Thornton, H. L., and Rowbotham, S.: Anesthesia in a Maxillo-facial Surgical Unit with the British Liberation Army. Anesthesiology 6:580, Nov. 1945.
10. Evans, F. T.: Modern Practice in Anesthesia. Hoeber, New York, 1949, p. 307.
11. Parsons, F. B.: Some Pharmacological Aspects of Avertin. Brit. M.J. II, 709, 1929.
12. Sollman, Torald: A Manual of Pharmacology. W. B. Saunders. Philadelphia, 1948, p. 667-9.
13. Barlow, O. W., and Duncan, J. T.: The Influence of Morphine on the Premedication Tribromethol (avertin) and Tribromethanol fluid (Avertin Fluid) in Relation to Nitrous Oxide Anesthesia. J. Pharmacol. and Exper. Therap. 49:50, 1933.
14. Goodman, L., and Gelman, A.: The Pharmacological Basis of Therapeutics. The Macmillan Co., New York, 1941, p. 100-101.
15. Wood, Dorothy: Tribromethanol as a Preoperative Narcotic. Calif. and Western Med. 33:719, 1930.
16. Quigley, J. P., Barlow, O. W., and Himmelsbach, C. K.: Correlation of Visceral and Somatic Activity Following Administration of Hypnotics. A. Barbital Compounds and B. Tribromethal. C. Avertin Fluid and Crystals. J. Pharmacol. and Exper. Therap. 49:50, 1933.
17. Pitt, N. E.: The Influence of Avertin Upon the Renal Function. Lancet I:741, March 30, 1935.
18. Anschutz, W.: Zur Frage der Rauschnarkose mil Avertin. Zentralbl. fur. Chir. 57:1500, June 14, 1930.
19. Welsch, A.: Cehmische Untersuchungen zur Avertin frage. Arch fur Experimentalle Path. und Pharm. 139:302, 1929.
20. McGurk, B.: Personal Communication.

A Method for the Rectal Use of Nisulfazole in Chronic Ulcerative Colitis*

William R. Durkee, M.D.**

Manhattan, Kansas

Since the introduction of the sulfonamides, various ones have been tried in the therapy of chronic nonspecific ulcerative colitis. In 1941, Weber et al.[1] mentioned that 2-(p-nitrobenzenesulfonamido)-pyridine might have therapeutic application in the treatment of lower intestinal infections. Later a similar compound, 2-(p-nitrobenzenesulfonamido)-thiazol, was produced and studied. When it was found[2] that both these compounds were not readily absorbed from the intestinal tract, their effects on patients suffering from ulcerative colitis were investigated. In the first report of the clinical use of these compounds in ulcerative colitis,[2] five cases were treated with encouraging results. For purposes of simplification, 2-(p-nitrobenzenesulfonamido)-pyridine has been designated Nisulfadine, and 2-(p-nitrobenzenesulfonamido)-thiazol has been designated Nisulfazole.

Although both compounds were used in the early cases, it was found that Nisulfadine frequently caused nausea. Therefore, its use was abandoned. Nisulfazole has produced few toxic effects and can be continued for long periods of time. In the early cases, Nisulfazole was administered only by mouth. A 0.3 gram tablet containing 50 milligrams ascorbic acid was used and given initially in doses of four to six grams daily. Nisulfazole, when administered by mouth, is partially converted into sulfathiazole in the intestinal tract, and both compounds appear in the blood. Later, a 10 per cent suspension of Nisulfazole in pectin was developed for administration by rectum. There was practically no absorption of the compound when given rectally, and this mode of administration was equally effective in controlling the disease process. The suspension has been ordinarily given in doses of 30 cc. twice daily, sometimes diluted with 30 to 60 cc. of water.

As is well known, the results of any treatment of nonspecific ulcerative colitis are difficult to evaluate because of the tendency to spontaneous remissions and relapses. However, the results of the use of Nisulfazole have been encouraging. In 1948, Major[3] reported on the use of Nisulfazole in 40 cases over a period of six years. He reported recovery in 33 and improvement in seven. The term "recovery" was employed when the patient was symptom free and the x-ray picture showed a normal colon. "Improvement" was used to designate patients who had no diarrhea and normal stools, but whose roentgenograms of the colon were not normal. Eleven of the patients had relapses which were again controlled by Nisulfazole. Most of Major's patients received the medication both by mouth and by rectum.

Wills reported on the use of Nisulfazole in 24 cases of ulcerative colitis.[4] Fifteen of the 24 patients showed definite improvement with this medication. Of the nine without improvement, four were in the polypoid hyperplastic stage. Wills used the rectal suspension exclusively if the x-ray showed involvement of the rectum and the lower colon only. The suspension was combined with oral tablets in doses of four to six grams daily if the x-ray showed more extensive involvement of the colon.

The use of the 10 per cent suspension in pectin by rectal instillation has come to be the more accepted method of using Nisulfazole because of the

*From the Department of Medicine, University of Kansas School of Medicine, Kansas City, Kansas.

**Now with the Ball Memorial Clinic, Manhattan, Kansas.

absence of nausea and because of the small amount of the compound which is absorbed systemically. The usual procedure in this clinic has been to administer 30 cc. of the suspension, containing 3.0 grams of Nisulfazole, usually mixed with 30 cc. of water, through a soft rubber catheter into the rectum. During this procedure, the hips of the patient are elevated and remain so for 20 to 30 minutes. Although this method has been helpful in a large number of cases, recently some doubt has arisen concerning the height which the suspension reaches in the colon. Wills[4] watched the progress of the suspension through the sigmoidoscope and reported that within a few minutes it had spread above the range of the sigmoidoscope and evenly coated the mucosal surfaces for observed periods up to two to six hours without redosage in some cases.

We undertook a study using a mixture of the Nisulfazole suspension with barium and examining the patient roentgenographically at varying time intervals. The suspension was given to five patients in the usual manner—in 60 to 90 cc. quantities with the hips elevated. It was given to one patient who assumed the knee-chest position for three minutes after the instillation, and to another who assumed the knee-chest position for five minues, then lay on his right side for 10 minutes. None of these patients had ulcerative colitis. It was found that the highest point of penetration up to six hours later was the sigmoid colon in three (43 per cent) and some portion of the descending colon in four (57 per cent). There was no penetration past the splenic flexure.

Because of the poor results using a small volume of solution, it was decided to use 400 to 500 cc. of a barium suspension containing 30 cc. of the Nisulfazole suspension, given slowly over a one- to two-hour period with the patient lying on his back. The procedure was well tolerated by most patients, only two being unable to retain this volume. In a series of 43 procedures, five of which were on three patients with ulcerative colitis, the results were as follows:

Solution reaching the ascending colon, 18 (42%)

Solution reaching only as high as the transverse colon, 11 (25%)

Solution reaching only as high as the descending colon, 9 (21%)

Solution reaching only as high as the rectosigmoid colon, 3 (7%)

Solution not retained, 2 (5%).

Of the five procedures done on patients with ulcerative colitis, two showed barium in the ascending colon, one in the descending colon, and two in the rectosigmoid colon. Although the series was too small to be significant, it was our impression that there was little difference in the height to which the suspension went between those patients with ulcerative colitis and those with illnesses unrelated to the colon. Early in the study it was found that the barium would appear higher in the colon if the roentgenogram was obtained two hours after the completion of the instillation than if the x-ray picture was taken immediately after the instillation was completed. In no patients were there any ill effects from the Nisulfazole or the procedure.

Although further trial and experience are necessary, it is suggested by this study that, when using Nisulfazole by rectal instillation in the treatment of chronic nonspecific ulcerative colitis, it can best be given as 30 cc. of the suspension in pectin mixed with 400 to 500 cc. of water. This mixture is given by a slow drip per rectum over a one- to two-hour period, followed by a further period of two hours of inactivity and rest in bed. This method would obviate the necessity of giving Nisulfazole by mouth in those cases of ulcerative colitis which show lesions radiographically extending into the ascending colon. It is also suggested by this study that whenever a medication is given by rectum for its effect locally on the colon, it is best given slowly in a large volume.

It is a pleasure to thank Dr. Ralph H. Major for his suggestions and encouragement in the course of this investigation.

Bibliography

1. Weber, C. J., Lalich, J. J., and Major, R. H. Reduction of 2-(p-Nitrobenzenesulfonamido)-Pyridine to Sulfapyridine in the Animal Body. Proc. Soc. Exp. Bio. and Med. 48:616, 1941.
2. Major, R. H., and Douglas, H. L. The Treatment of Ulcerative Colitis with Nisulfadine and Nisulfazole. J. Kansas Med. Soc. 1942.
3. Major, R. H. Nisulfazole in the Treatment of Chronic Ulcerative Colitis. Stanford Med. Bulletin 6:147, 1948.
4. Wills, C. B. The Use of Nisulfazole in the Treatment of Ulcerative Colitis. Rocky Mt. M.J. 46:743, 1949.

93rd Annual Session

KANSAS MEDICAL SOCIETY

Kansas City, Kansas April 27-May 1, 1952

Hemorrhagic Transfusion Reactions

Charles H. McCroskey, M.D.,* and Stanley R. Friesen, M.D.*

Kansas City, Kansas

The ready availability of blood for multiple transfusions in surgical practice has resulted in better preoperative preparation of patients, the safer accomplishment of extensive surgery and a more rapid rehabilitation of seriously ill patients. Because of the widely prevalent use of blood in recent years, the absolute incidence of transfusion reactions has increased. Because of newer and improved technics in blood-matching, the relative incidence has probably decreased in proportion to the number of transfusions given.

Not the least serious of the types of transfusion reactions which may develop after the infusion of incompatible blood is the development of a marked hemorrhagic tendency. This occurrence may result in serious bleeding and may be the only indication that an anesthetized patient is undergoing a transfusion reaction.

Attention has been directed to the problem of massive generalized wound bleeding during operation in a previous report of seven cases.[1] The bleeding was observed as an "ooze" of dark blood from all cut surfaces which was virtually refractory to the usual methods of hemostasis. Uncontrollable exsanguination resulted in death in five of these cases.

Careful analysis of these cases strongly indicated that the transfusion of incompatible blood was probably the sole causative factor for the abnormal bleeding. That a hemolytic reaction had taken place was apparent. It was felt that other possible etiological factors such as shock, anesthetic agents and drug sensitiveness were not responsible for the hemorrhagic state. There was a discouraging lack of response to measures used in attempt to control the bleeding, such as intravenous calcium, vitamin K, fresh blood given directly or indirectly, anti-hemophiliac globulin, topical and intravenous thrombin, intravenous procaine, anti-histaminics, protamine sulfate and toluidine blue, and, in some, splenectomy. However, the protamine sulfate and toluidine blue were given in dosages considered now to be insignificant and inadequate.

Although the evidence seemed to incriminate transfusion reactions as the basis for the hemorrhagic state, positive evidence of mismatching in the ABO system was demonstrable in only one case. Utilization of more recent tests for the detection of incompatibility in the Rh system might have prevented some of the disastrous hemorrhagic transfusion reactions described above.

To understand the mechanism of any type of reactions resulting from incompatible transfusions, a brief review of the basic concepts involved is advisable. The red blood cells of every human being contain many different blood group substances which are divided into nine systems. The antigens in each of these systems are inherited independently of the antigens in each of the other systems.[2] The individual blood-group antigens vary in their ability to stimulate the production of antibodies. Some antigens, like A, B, and D (Rho) are strong antigens, but only in those individuals who lack them. Others, like O, N, and P are very weak antigens; others are intermediate in antigenicity.[2] The clinical importance of these various blood-group antigens depends on their antigenicity. A person lacking a particular antigen in the red blood cells is susceptible to sensitization by that antigen if exposed to it by transfusion, intramuscular injection, or by transfer of fetal blood across the placenta.

Human blood group antibodies are found in the serum of most human beings in various combinations. Only persons of Group AB are not likely to have naturally-occurring blood-group antibodies of any kind. Since the discovery of the Rh blood groups, not only have a large number of specific blood-group antibodies been discovered but it has also been shown that any one may exist in different forms, such as a "saline-active" form, an "albumin-active" form and a "blocking" form.[2]

The presence of blood-group antibodies other than anti-A and anti-B in any individual implies previous sensitization (isoimmunization) by parenteral injection or by placental transfer of the antigen. An indication of the likelihood of encountering naturally-occurring as well as induced blood-group antibodies is seen by the fact that anti-A, anti-B, anti-C (Rh′) and anti-D (Rho) are found simultaneously in a fair number of women who are Group 0, Rh-negative. In one carefully examined serum from a repeatedly transfused patient, nine different specific blood-group antibodies were found simultaneously.[2]

Transfusion of incompatible blood results in agglutination and hemolysis of the donor's cells by the serum of the recipient—an antigen-antibody reaction. Practically speaking, this more commonly is a result of mismatching with the antigens A, B, and

*Department of Surgery, University of Kansas School of Medicine, Kansas City, Kansas.

D (Rh_0). However, at least a dozen of the lesser blood group antigens are sufficiently antigenic to sensitize some recipients who lack them. If sensitization does occur, reactions to future transfusions are likely. Fortunately, actual sensitization is not likely to occur frequently because of the low antigenicity of these lesser blood group substances.[2]

That marked hemorrhage may ensue in hemolytic transfusion reactions is confirmed by isolated reports in the literature.[3, 4, 5] In an extensive study on the immunological aspects of transfusion reactions, Brown[6] has demonstrated a consistent blood clotting defect, the nature of which has not been reported. He has noted this clotting defect also in dogs undergoing hemolytic transfusion reactions.

Other evidence that hemorrhagic disorders may result from blood group incompatibilities is seen in the hemolytic type of erythroblastosis fetalis. These babies may have abnormal bleeding.[7] The production of anaphylactic shock in dogs after sensitization with a suitable antigen is well known to render the blood incoagulable. An increased amount of circulating heparin and the activation of fibrinolysin have been demonstrated in this condition.[8]

A group of patients experiencing transfusion reactions from incompatible blood more recently has been studied by the authors.[9] It was apparent from these studies that the hemorrhagic state may develop as a result of the infusion of blood incompatible in either the ABO or Rh systems. Furthermore, for the hemorrhagic diathesis to occur it was noted that the reaction was usually of a hemolytic type in which 250 cc. of blood or more had been given. The administration of such amounts of incompatible blood is possible in an anesthetized patient in whom the usual signs of a reaction are masked.

Although the exact nature of the clotting defect is not known, these studies demonstrated that there may be an increased amount of heparin-like substance (as measured by the Allen protamine titration test[10]) circulating in the blood and that increased fibrinolytic activity, which results in the dissolution of fibrin clots, attends the reaction. Hemolysis itself is probably not the cause of the hemorrhagic state.[11] Moreover, the use of toluidine blue dye (15 mgm. per kilogram body weight in one liter of isotonic fluid intravenously) adequately controlled the abnormal bleeding as well as brought about a reversion of the abnormal heparin levels and fibrinolysis to normal.

Similar findings of a hemorrhagic state in hemolytic transfusion reactions have been reported by Muirhead.[12] He has also found increased levels of heparin-like substances which responded to toluidine blue therapy.

Although the hemorrhagic state resulting from incompatible transfusion is uncommon, the possibility of its occurrence must be emphasized. It behooves every physician who contemplates transfusing patients with blood to take certain precautions concerning the selection of both the blood and the patient. Every patient who is to be transfused should be carefully questioned for a history of previous transfusions or previous transfusion reactions. If the patient is a woman additional information regarding pregnancies and hemorrhagic disturbances should be obtained. It is generally agreed that husbands (or their immediate relatives) should not be used as donors for their wives unless an emergency exists and other donors are not available.

Avoidable human errors in the selection of blood probably account for a majority of incompatible transfusion reactions; consequently extreme care in the typing and cross-matching of blood is necessary. The routine employment of the indirect Coombs test[13] would provide greater safety by the detection of unsuspected Rh antibodies in previously sensitized patients. It should be remembered that sensitization by one or more blood group antigens is possible whenever transfusions are given.

References

1. Friesen, S. R., and Nelson, R. M.: The Occurrence of Massive Generalized Wound Bleeding During Operation With Reference to the Possible Role of Blood Transfusions in its Etiology; Am. Surg., 17:609-622, 1951.

2. Soutter, L., Allen, F. H., Jr., and Emerson, C. P.: Blood Grouping, Blood Banking, and Blood Transfusion; N.E.J.M., 245: 367-375, 410-424, 456-464, 1951.

3. Weiner, A. S.: Blood Groups and Transfusions; Charles C. Thomas, Springfield, Ill., 1943.

4. Levine, E. C., and Segall, H. N.: Post-transfusion Reactions, Alterations in Blood after Ether Anesthesia and After Blood Transfusions; Surg. Gyn. and Obs., 35:313, 1922.

5. Lattes, L., (1932) in Whitby, L. E. H., and Britton, C. J. C.: Disorders of the Blood; Blakiston Co., Phila., 1946, p. 535.

6. Brown, I. W., Jr.: The Immunological Aspects of Transfusion Reactions. Presented to the Society of University Surgeons, Feb. 1951. Personal communication to one of the authors.

7. Potter, E. L.: Rh, Its Relation to Congenital Hemolytic Disease and to Intragroup Transfusion Reactions; The Yearbook Publishers, Inc., Chicago, Ill., 1947.

8. Rocha e Silva, M.: The Role Played by Leucocytes and Platelets in Anaphylactic and Peptone Shock; Ann. N.Y. Acad. Sciences, 50:1045-1063, 1950.

9. Friesen, S. R., Harsha, W. N., and McCroskey, C. H.: Massive Generalized Wound Bleeding During Operation With Clinical and Experimental Evidence of Blood Transfusion Reactions. Reported before the A.M.A., Atlantic City, June 13, 1951. To be published.

10. Allen, J. G., Moulder, P. V., et al.: A Protamine Titration As an Indicator of a Clotting Defect in Certain Hemorrhagic States; J. Lab. & Clin. Med., 34:473-476, 1949.

11. Authors' experimental observations.

12. Muirhead, E. E.: Incompatible Blood Transfusions With Emphasis on Acute Renal Failure; Surg., Gyn. & Obs., 92:734-746, 1951.

13. Coombs, R. R. A., Mourant, A. E., and Race, R. R.: A New Test for the Detection of Weak and "Incomplete" Rh Agglutinnins; Brit. J. Exp. Path., 26:255-266, 1945.

BLUE SHIELD

Public Relations Potential

It has been said that good public relations is 95 per cent good service and five per cent interpretation—interpretation being the job of convincing the public that you do have good service.

Blue Shield and Blue Cross Plans throughout the country are becoming increasingly aware of the tremendous value of identifying themselves with doctors and hospitals. This identification if thoroughly performed would have the effect of convincing the public that the non-profit prepayment plans are in a state of active cooperation with those who actually produce the service—that is the doctors and the hospitals.

There is an intriguing chain of thought in connection with more public relations for Blue Shield through participating physicians. For example there are 1,500 Blue Shield participating physicians. It is quite likely that each one of these physicians has an average of at least 10 patients visiting his office six days a week. If Blue Shield could have an attractively designed poster which might be changed each month hanging on the wall in each participating physician's office, this poster would be seen by at least 15,000 people a day. Not only would it succeed in getting across an important message about Blue Shield but it would further serve to solidify the impression in the public mind that Blue Shield is in fact sponsored and backed by the medical profession.

The big problem in an undertaking of this kind is not the preparation of the message—it is the simple little job of getting the poster up on the doctor's wall.

In the past Blue Shield has distributed information cards through physicians' offices and there has been considerable response from these cards. However, there is a much greater potential in the poster approach. This subject will be presented to the physicians on the Blue Shield Relations Committee during the coming months.

Blue Shield and Blue Cross are temporarily suffering from the high standard they have maintained in the product they are offering to the people of Kansas. A small percentage of people tend to seek cheaper contracts which often times fail miserably when people are hospitalized or need physician service. The job ahead of us now is to demonstrate to the people the need for the program which maintains a high standard of protection first and then the fact that Blue Cross and Blue Shield are maintaining this standard. The public still does not thoroughly understand what has happened to hospital costs in the past few years. Few people realize that hospital bills can amount to $1,000, $1,500 and even $3,000. That is why some people are attracted to prepayment plans of commercial insurance companies which promise certain cash indemnities at lower rates than Blue Cross and Blue Shield have to charge. Because of the lack of awareness of the real problem in hospital costs, these policies seem reasonably adequate to the uninitiated.

The Blue Cross and Blue Shield Plans in Kansas are trying to make use of every medium possible for getting this story across to the public. However, newspaper and radio advertising are costly. It would take many thousands of dollars to carry out such a campaign to the extent that the public might really get the message. This is why the Kansas plans are beginning to turn to physicians and hospitals to win their support in carrying this important story to the people of our state.

Report on Research

In the last few days members of the Kansas Medical Society have received a pamphlet entitled "A Report on Research," published by the University of Kansas School of Medicine with the request that these be placed in the physicians' waiting rooms.

The pamphlet, on enameled paper, presents the over-all picture of the different diseases and conditions upon which research is conducted at the school, cancer, heart disease, high blood pressure, poliomyelitis, newborn baby deaths, sterility, and arteriosclerosis. The engravings used as illustrations were made from photographs taken by students.

The Journal calls attention to this publication in the hope that all physicians will comply with the request that the pamphlets be placed in waiting rooms. Contributions for the support of the research program are welcomed by the school, and the knowledge conveyed in the booklet may prompt donations to continue the research.

Better health and higher standards of living are among the most potent weapons in the fight against Communism in Southeast Asia and Japan, two top executives of Parke, Davis and Company declared recently at the conclusion of a 25,000-mile business trip. Harry J. Loynd, president of the firm, and W. R. Jeeves, director of overseas operations, who talked to prominent government officials and businessmen everywhere they went, said they had encountered a "growing awareness of the importance of better health and everything that contributes to it. . . If any of those governments turn to Communism, it will be by force of arms, not by voluntary means."

PRESIDENT'S PAGE

Dear Doctor:

I would like to remind each of us who are now and have been trying to practice an ethical and a high type of medicine to survey and take inventory of the assets we have accumulated from the deficit our alma mater experienced the day we were graduated. I am of the opinion that we will see that we have obviously benefitted greatly and that we owe our school a little more than gratitude.

The American Medical Association is a co-partner in an educational foundation, and has this past year contributed $500,000 to the medical schools of this country; 1800 doctors subscribed an average of $55 each, while the layman interested in medicine and our well being subscribed much more than we did, which, in my humble opinion, is contrary to the laws of self preservation.

The American Medical Education Foundation is a permanent organization, and it is hoped that each physician can see fit to make some annual contribution. The amount you give is to be determined by only one person; that person is, of course, YOURSELF. This amount is construed by the foundation and the specific school you designate as a symbol of your interest in keeping the schools going and not as a debt you owe. The donation is tax free. I am too embarrassed to put into print the number of Kansas physicians who last year participated, but I feel that when we call attention to the workings of this very fine organization and the high ideals for which it stands we shall, as we always do, rally to the cause and demonstrate to our respective schools, to the foundation and all interested lay organizations that we are still interested in the future of medicine. Your central office will handle your checks and will answer any questions that you might have that concern the entire program.

The weather was most extravagant with disappointments and embarrassments on March 3, 1952. If there is anyone who doubts this statement, I refer you to Acting Dean Hashinger and Mr. Oliver Ebel.

The committee selected to make a complete study of the Social Welfare Board's health care problems as they concern the client, the hospital, the druggist and the doctor is making headway, and at the House of Delegates meeting a report will be made, even though it will not be complete.



EDITORIAL COMMENT

Sixth Annual University Issue

The Journal is proud to present the Sixth Annual University of Kansas School of Medicine issue. It will be noted that the scientific contributions are original papers prepared by the faculty at the medical school. The occasion also provides an opportunity to discuss the achievements of the school and the cooperative spirit existing between the medical profession of this state and the university.

The long list of achievements is all the more remarkable for the fact that they have been accomplished within the past few years. The school has grown in size since 1949 when the Kansas legislature appropriated some four million dollars for additional buildings and equipment. This expansion, currently nearing completion, has erected upon the site of the medical center a veritable educational and hospital city.

A larger enrollment now enables more Kansas young men and women to study medicine. One hundred five instead of the previous 80 students are currently being enrolled in each class. The preceptor program has become a reality within the past few years and is already demonstrating its effectiveness. Students obtain direct knowledge of the actual practice of medicine, and the practicing physician is benefitted by having a student work with him.

One of the great accomplishments is the addition of color television to the teaching curriculum. This, now included in several departments, is in daily use and makes the University of Kansas School of Medicine the first institution of its kind to use the new teaching method.

Graduate education has progressed dramatically. This continually expanding project is attracting not only increasing numbers of Kansas physicians but also doctors from all over the United States. More courses and expanded enrollments have been experienced each year since the program began.

The above is in no way a tabulation of the achievements at our school of medicine. It represents, rather, a comment on only a few of a great many that could be recorded. Among the others should be a story on research, expanded effort in lay education, and many more.

The Kansas Medical Society is proud of this school and is taking a large interest in its progress. This year finds such interest and cooperation more apparent than ever before. The future is promising. The Kansas Medical Society and the medical school will combine their efforts toward the creating of an institution of learning that will be outstanding among all in the United States. They will continue to jointly sponsor every worthwhile effort toward the end that the people of Kansas may have the finest possible health service and medical care. All this has already been achieved in large measure, but the accomplishments of the past create additional challenge for the future, which provides an opportunity for even greater achievements for the years ahead.

Kansas Medical Day

The Fourth Annual Kansas Medical Day was held in the University of Kansas Medical Center, Kansas City, on Monday, March 3. It is the one day of the year during which the junior and senior students of the medical school are guests of the Kansas Medical Society.

The 1952 program was exceptional because of a different type of program than conducted during the past similar occasions. The purpose of this is to create an interest in these young men and women in practicing medicine in Kansas. During past years, various physicians from different parts of the state have spoken on subjects relating to their work, their recreation, and their communities.

This year the program was presented by outstanding business and professional men of Kansas. The theme was taken from the Declaration of Independence through the use of the words, "Life, Liberty, and the Pursuit of Happiness."

The morning session was devoted to "Life," or more specifically, "Life in Kansas." Mr. Maurice E. Fager, director of the Kansas Industrial Development Commission, Topeka, spoke on Kansas industry. Kansas manufacturing was covered by Mr. Fred Stein, president of the Stein Laboratories, Atchison, and past president of the Kansas State Chamber of Commerce. Kansas aircraft was discussed by Mr. Robert Chatley, public relations director of the Cessna Aircraft Company, Wichita. Kansas finance was discussed by Mr. Claude Pack, president, Home State Bank, Kansas City, and past president of the Kansas Division of the American Bankers' Association.

The afternoon session dealt with "Liberty," during which time the four freedoms were the titles of the presentations. Freedom from want was spoken upon by Ray I. Throckmorton, dean of the School of Agriculture, Kansas State College, Manhattan; freedom of speech by Mr. Ed Abels, editor and publisher of the *Lawrence Outlook,* Lawrence; freedom of worship by Dr. Eugene M. Frank, pastor, First Methodist Church, Topeka, and freedom

from fear by Capt. James Flatley, commanding officer of the Naval Air Station, Olathe.

The evening was devoted to "Pursuit of Happiness," with the junior and senior students and their wives or friends as guests of the medical society. Following a social hour, dinner was served at the Town House Hotel, Kansas City, and after a few introductions the remainder of the evening was spent dancing.

American Medical Education Fund

The American Medical Education Fund plans to raise, through voluntary contributions, at least $1,000,000 annually, which fund is to be distributed among the 72 medical schools in the United States. Contributions to this fund are expected to come primarily from the medical profession, both organized societies and individuals.

The background, in its briefest outline, should begin with a story of the National Fund for Medical Education. This, headed by Mr. Herbert Hoover, consists largely of lay persons and organizations who are interested in medical education. They are appealing to individuals for donations for medical schools. The American Medical Education Foundation is supported by the American Medical Association and may be considered as the medical portion of the national fund. The national fund has a goal of five million dollars, of which one million is the responsibility of the medical profession. Last year the American Medical Association gave a half million dollars. All other medical contributions for the year totalled less than $250,000.

The money is disbursed to the schools under three classifications. The first is a grant of equal size to each approved medical school in the United States. The second is an additional grant based on a uniform annual sum per student enrolled in each approved medical school in the United States. The third represents special grants to individual schools on the basis of particular needs or problems. This last named category can become of significance only when the fund is of considerably larger size than at present. Last year, for instance, each medical school received $15,000 under the first category and $17 per student under the second, or an average of about $5,600. It is hoped that in future years some four million dollars will be distributed through the first two grants and that additional funds will be available for grants of the third type.

The Journal of the American Medical Association has repeatedly carried information on this program, but in spite of continual effort physician contributions have been discouraging. A few months ago it was written into the Congressional Record by Senator James E. Murray, during a debate on the Federal Aid to Medical Education bill, that "I am glad that the AMA is urging members every week to individually contribute a hundred dollars a year to the support of our medical schools. But I am sorry to note that during the first 24 weeks of that campaign less than three one-hundredths of one per cent of the country's physicians was in sufficient agreement with the AMA's position to make such an individual contribution. . . . When you add up the list of those who did, you will find that it represents approximately .003; three one-hundredths of one per cent of the doctors of America agree with the AMA's leadership as to how that which the AMA itself calls 'A Challenge to the Medical Profession' should be met."

The aims and objectives of the American Medical Education Foundation are familiar to everyone concerned. The remaining problem is merely to create sufficient interest so that a large portion of our practicing physicians will make a contribution. Checks should be mailed directly to the American Medical Education Foundation of the American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois. Amounts of any denomination are acceptable, and special emphasis is made to acquaint each physician with the fact that contributions may be earmarked for specific schools. These will be sent to those schools, and individual credit for the contribution will be received. The entire project is voluntary, but the ultimatum is whether enough physicians will support the voluntary program to remove the current attempt to bring this into a compulsory level and under bureaucratic control. Senate Bill 337 is still before the Congress. If this voluntary program succeeds, it will remove the need for federal aid. Should federal aid be granted, medical education under private enterprise will have been lost.

Annual Meeting, April 27-May 1

Plans for the 93rd annual meeting of the Kansas Medical Society are rapidly being completed. The session will run from April 27 through May 1, in Kansas City, Kansas, with members of the Wyandotte County Medical Society as hosts.

The first item scheduled on the program is a meeting of the Board of Directors of Kansas Physicians' Service (Blue Shield), to be held on Sunday, April 27. On the following day there will be the usual sports events, a golf tournament and a skeet shoot, with a tournament banquet in the evening.

Scientific sessions at the Memorial Auditorium will begin on Tuesday morning, April 29, and will continue there until Thursday noon, May 1. The

afternoon on Thursday will be devoted to a clinical program at the University of Kansas Medical Center, covering many of the newer phases of chronic rheumatic heart disease.

Two meetings of the House of Delegates will be held during the session, both at the Town House, Kansas City's new hotel. The first will be a dinner meeting on Tuesday evening and the second will be a luncheon meeting on Thursday noon. All new business to be considered at the 1952 session should be presented at the first meeting as the introduction of new business at the second session requires the consent of two-thirds of the voting delegates present.

Some component societies have not been represented at former meetings of the House of Delegates, and each group is urged this year to send its maximum number of delegates to each session. The House of Delegates, primary legislative and governing body of the Society, is composed of officers, councilors, and past presidents of the Society and one delegate for each 20 members or major fraction thereof of component societies.

The following well known speakers have accepted invitations to take part in the scientific program:

Maurice E. Davis, M.D., Associate Professor, Obstetrics and Gynecology, University of Chicago—Obstetrics and Gynecology.

L. Kraeer Ferguson, M.D., Professor of Surgery, Graduate School of Medicine, University of Pennsylvania, Philadelphia—Surgery.

Thomas Findley, M.D., Professor of Clinical Medicine, Tulane University, New Orleans—Medicine.

H. F. Fraser, M.D., United States Public Health Service Hospital, Lexington, Kentucky—Drug Addiction.

George J. Garceau, M.D., Professor of Orthopedic Surgery, University of Indiana, Indianapolis—Orthopedics.

C. Allen Good, M.D., Associate Professor of Radiology, Mayo Foundation, Graduate School, University of Minnesota—Radiology.

Bayard T. Horton, M.D., Associate Professor of Internal Medicine, Graduate School, University of Minnesota—Medicine.

Phillip J. Howard, M.D., Department of Pediatrics, Henry Ford Hospital, Detroit—Pediatrics.

James B. McNaught, M.D., Head of Department of Pathology, University of Colorado School of Medicine and Hospitals—Pathology.

R. D. Pruitt, M.D., Assistant Professor of Medicine, Graduate School, University of Minnesota—Medicine.

Alfred Sugg, M.D., Ada, Oklahoma—Urology.

Owen H. Wangensteen, M.D., Professor of Surgery, University of Minnesota—Surgery.

General chairman for the meeting is Dr. Lee H. Leger. Other committee chairmen are as follows: Scientific Program, Dr. William H. Algie; EENT Scientific Program, Dr. Clifford J. Mullen; Commercial Exhibits, Dr. Peter E. Hiebert; Scientific Exhibits, Dr. Hughes W. Day; Arrangements and Banquet, Dr. C. Omer West; Publicity, Dr. Oscar W. Davidson; Entertainment, Dr. Michael J. Ryan; Reception, Dr. Glenn R. Peters; Auxiliary, Dr. Leland N. Speer.

Nominations for K.M.S. Offices

The following physicians have been nominated for offices in the Kansas Medical Society, the election to take place on the last day of the annual session to be held in Kansas City, April 27-May 1:

President-elect	L. R. Pyle, M.D., Topeka P. W. Morgan, M.D., Emporia
First vice president	M. C. Eddy, M.D., Hays J. G. Hughbanks, M.D., Independence
Second vice president	H. H. Jones, Sr., M.D., Winfield J. M. Porter, M.D., Concordia
Constitutional secretary	D. D. Vermillion, M.D., Goodland J. D. Colt, Jr., M.D., Manhattan
Treasurer	J. L. Lattimore, M.D., Topeka Dwight Lawson, M.D., Topeka
A.M.A. Delegate (term of 1953-1954)	L. S. Nelson, M.D., Salina T. P. Butcher, M.D., Emporia
A.M.A. Alternate Delegate (term of 1953-1954)	G. F. Gsell, M.D., Wichita C. V. Black, M.D., Pratt

Additional nominations for any office may be made from the floor.

The first step towards prevention of occupational tuberculosis (in hospitals) is to uncover every case of communicable tuberculosis among the patients. That requires chest x-ray examination of every patient on admission. Only when both employees and patients have chest x-rays does the hospital break the vicious cycle: infection of personnel by patients, with no one being aware that these patients have tuberculosis, and infection of patients by the personnel who continue on duty for months before being aware that they themselves are ill with tuberculosis. The prevention of tuberculosis in the personnel is only one of the several reasons for admission chest x-rays. In the interest of the patients, admission chest x-rays should be done even if there were no occupational disease problem.—*Leopold Brahdy, M.D., The Canadian Nurse, November, 1951.*

Case Reports From The University of Kansas Medical Center Tumor Conference*

Bone and Joint Tumors

Edited by R. E. Stowell, M.D., and D. M. Gibson, M.D.**

Case No. 51-109

R. B., a 36-year-old white woman, was admitted to the University of Kansas Medical Center on August 23, 1951, with a chief complaint of pain and swelling of the left knee. She first noticed weakness of the left knee one year prior to admission; there was no history of injury. Two or three months prior to admission she first noticed a small tumor on the left knee, which was enlarging and was accompanied by some tingling and pain. Physical examination revealed a tumor mass one inch in diameter visible on the medial side of the patellar tendon at the joint line. The mass disappeared on flexion of the knee. There was no swelling of the joint. The tumor mass was firm in consistency, was not attached to the skin, and produced some limitation to movement. On August 24, 1951, an arthrotomy of the knee was done and a tumor mass attached to the medial meniscus was removed. The patient's postoperative course was uneventful and she was discharged September 2, 1951, to be followed in the out-patient department.

Dr. Haslam: Geschickter and Copeland[1] found a semilunar tumor mass which measured three cm. in diameter. It was attached to the medial meniscus, and to the synovial tissue by a pedicle. On cut section the tissue was yellowish brown with some lobulation. Microscopically the main tumor mass is lobulated and is composed of dense cellular tissue with numerous large multinucleated giant cells. In some areas there is distinct brown pigment. In one place there is a characteristic xanthomatous area composed of large cells with foamy cytoplasm and small, dense nuclei. This is a benign giant cell tumor.

Dr. Haslam: Geschickter and Copeland[1] found that eight of 17 tumors (excluding osteochondromas or chondromatosis) of joints were giant cell tumors, or xanthomas. Among the preoperative possibilities were lipomas, fibromas, fibrosarcomas and hemangiomas. These were all less frequent in this series than giant cell tumors, or xanthomas. This tumor was easily exposed surgically and the tumor and medial meniscus were removed; there was some synovial membrane adjacent to the cartilage that was removed with the tumor to be sure of adequate excision. This case is typical. The tumor involves the knee joint much more commonly than other joints. De Santo and Wilson[2] in 1939 reported nine cases and found 32 more in the literature up to that time. This tumor usually occurs between the ages of 20 and 40. Thirty-six of the 41 cases were in the knee. There are three types distinguished: pedunculated, multiple and diffuse. Malignant changes have not been reported, but De Santo and Wilson's review[2] reported seven local recurrences following excision. This patient had an uncomplicated convalescence and is back at work.

Dr. Weaver: The figures of Geschickter and Copeland[1] certainly do not correspond with our experience here. In this institution we've had one xanthoma of the knee joint before this one. It had a pedicle arising from synovia, and it was exceedingly simple to remove. We have had some six or seven hemangiomas of the knee joint, which might give similar symptoms. In 1941 I reported[3] several cases of hemangioma of the knee joint and reviewed over 30 cases in the literature. I think the xanthomas are a much rarer tumor than the hemangiomas and some of the other tumors around the knee joint.

Dr. Firminger: Giant cell tumors of bone may become malignant. I agree with Geschickter and Copeland[1] in thinking that irradiation may accelerate or aid in the development of malignancy from giant cell tumors in the bone.

Dr. Helwig: We have in our material at least three or four examples of so-called benign giant cell tumors which destroyed the patient by metastasis. In one case the metastases looked just about as benign cytologically as the primary lesion, although there is usually atypical proliferation of the spindle cell elements.

Case No. 51-108

D. H., a 13-year-old boy, was admitted to the medical center on March 15, 1950, with a chief complaint of swelling of the left knee. The preceding December and January he suffered some pain in the left knee following injuries. The pain sub-

*Cancer teaching activities aided by a grant from the National Cancer Institute and the Kansas Division of the American Cancer Society.

**Postdoctoral clinic research fellow of the Damon Runyon Memorial Fund for Cancer Research.

sided, but he had had some intermittent pain in the following weeks. On March 1 some swelling was noted, accompanied by marked tenderness. X-ray shortly thereafter showed a lesion of the lateral condyle. It was diagnosed as a bone tumor and the patient was referred to this hospital for treatment. Physical examination revealed a moderately tender, definitely warm mass over the lateral aspect of the left knee just above the joint. This mass was firm and appeared fixed to the deep structures. Biopsy of the tumor was performed on March 17, 1950, and on March 22, 1950, a mid-thigh amputation was done. A pressure dressing and mild traction were maintained. The stump healed well, and the patient was dismissed, to be followed as an outpatient.

Dr. Tice: Roentgenograms of the left knee show bone destruction of the lower end of the femur and a little bone production, radiating in the form of a sunburst architecture out from the shaft; it also shows a triangular shadow in the destructive area

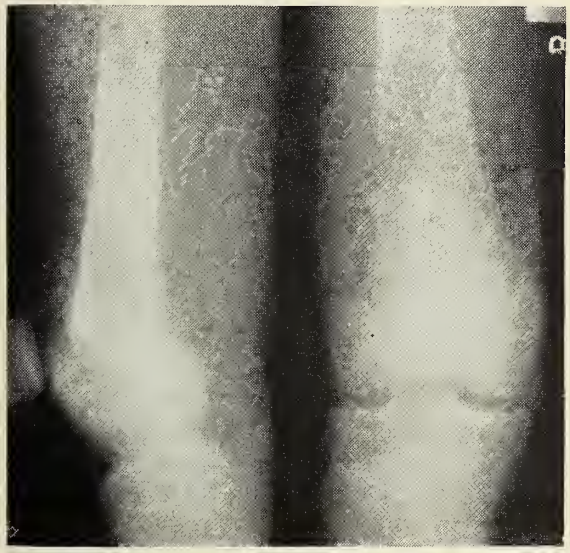


Figure 1. Roentgenograms of left femur of patient 51-108 showing altered architecture of osteogenic sarcoma.

that we speak of as Codman's triangle. The roentgenograms are classical of osteogenic sarcoma. Kolodny[4] points out in a rather large series that many osteogenic sarcomas occur around the knee, either at the lower end of the femur or the upper end of the tibia. The bone destruction is the most important thing, and bone production is often present also. In Kolodny's series,[4] 18 per cent of his cases showed a sunburst type of bone production, so that is not necessarily present. I think that the triangular demarcation of the tumor is the most important factor in forming the diagnosis. The outline of the shaft is usually preserved.

Dr. Firminger: The gross specimen consisted of the left leg; in the region of the lateral condyle there was a tumor which extended for about two cm. into the soft tissue and extended into the marrow cavity for about three cm. Microscopically, the tumor is characteristic of osteogenic sarcoma.

Dr. Weaver: From practically every viewpoint this case is classical of osteogenic sarcoma. The age group, the history, the physical findings, location of the tumor, and the x-ray and microscopic picture are all typical. These tumors are most discouraging to treat. Out of 150 cases we have two that have survived over 10 years; one that has lived over five years; one that has lasted three years; and we have several in the one and two-year group. Aside from these few, they are all dead. We don't have much to offer these patients in the way of curative treatment. When we have determined, by biopsy, that we are dealing with an osteogenic sarcoma, we suggest to some responsible member of the family that an amputation be done. They ask, "If we do this, is he going to be all right?" We have to say, "Probably not—the chances are that within one to three years this will metastasize to the lungs and will end fatally." Why should we subject the boy to amputation? It is either this or nothing. X-ray is not the treatment of choice but may sometimes give palliation. If we do an amputation the patient can go ahead without any pain and, for a period of time, lead a fairly normal existence. If amputation is not done, the patient starts taking aspirin, codeine, morphine, until he becomes an addict, and he will come back eventually, begging for amputation. By this time all hope is lost.

This boy gave a history of trauma. The role of trauma in osteogenic sarcoma is difficult to evaluate. Dr. Coley[5] was positive that trauma was an etiological factor. Others are just as positive that it has nothing to do with it. Trauma may aggravate the growth of some tumors.

Dr. Helwig: If trauma were an important factor we would expect to see these tumors frequently in relation to the millions of fractures that occur, yet the occurrence of osteogenic sarcoma in non-pathologic traumatic fracture is practically unknown.

Case No. 51-110

C. C., a 62-year-old man, entered on October 1, 1951, with the chief complaint of soreness in the left leg for six months and swelling of the upper leg for one month. Six months previously he first noted the onset of intermittent dull aching pain in the left hip, associated with slight limitation of straight leg raising. This had progressed so that the patient, due to severe pain, was unable to raise his left leg more than one foot off the bed. One month prior to admission he noted swelling on the outer aspect of the left upper leg near the hip, accompanied by slight pain and soreness. There had been

a 10-pound weight loss in the past four to six months, with some anorexia. The significant physical findings were confined to the extremities. There was a large, smooth, firm mass 10 x 8 cm. in size, with slight tenderness to palpation, located on the lateral aspect of the left leg just below the hip. Active leg raising was limited to 20°; passive leg raising was normal. Laboratory studies were within normal limits. On October 3, 1951, the femoral tumor was biopsied. A short time later the leg was amputated.

Dr. Tice: Roentgenograms of the upper femur show an expansive type of pathological process with widening of the shaft and minimal bone destruction along the lateral aspect. There is soft tissue swelling and some bone production in the soft tissues and along the medial aspect. The shaft has a fibrocystic type of architecture. This picture suggests a malignant bone-producing tumor, an osteogenic sarcoma. Although this is primarily a tumor of youth and adolescence, according to Kolodny,[4] 14 per cent of patients with Paget's disease develop osteogenic sarcoma. We have had one such case in the past and I thought this to be another.

The possibility of a metastatic tumor from the kidney was suggested by the pathologist on the basis of the biopsy. For this reason, retrograde pyelograms were done, which showed a filling defect in the calyces on the right side. It is not possible to exclude this kidney as the source of a malignant process. The bone lesion resembles a primary tumor more than a metastasis on the basis of the expansive type of growth and the bone production. A metastatic growth ordinarily destroys bone.

Dr. Firminger: The biopsy, which shows tissue with a fibrous stroma containing interlacing bundles of undifferentiated cells and areas suggestive of osteoid, was interpreted as being either a metastatic undifferentiated renal cell carcinoma or an osteogenic sarcoma.

The amputated specimen showed thickening of the cortex of the femur over the medial aspect, and thinning of the cortex over the lateral aspect. Anteriorly, the cortex was broken through by a large yellowish mass of tissue that was extending into the muscle. In some areas this tissue was soft, while in other areas it was hard and appeared to contain bony material.

Microscopically, this tumor, the bulk of which is composed of undifferentiated spindle-shaped cells, osteoid and poorly formed spicules of bone, is an osteogenic sarcoma.

Dr. Weaver: It is interesting that Dr. Tice, Dr. Haslam and I independently came to the same conclusion that this was an old Paget's disease with an osteogenic sarcoma superimposed. The idea that it might have been a metastatic renal carcinoma had not entered my mind until the pathologist raised the question. Metastatic renal carcinomas are exceedingly interesting to the orthopedist because we see a great many of them that metastasize to bone. Many times these are huge solitary tumors; the patient often complains of the bone lesion but has no complaint at all relative to his kidneys. Metastatic renal carcinomas in bone are usually bone-destructive lesions. Frequently they are pulsating tumors with a pronounced bruit. If one sees a pulsating tumor that is remote from a major blood vessel, the first thing to consider is a metastatic renal carcinoma.

This tumor was quite vascular, but not nearly so vascular as one expects in a metastatic renal carcinoma. We felt that amputation of this part was indicated, regardless of whether it was metastatic or otherwise. Osteogenic sarcomas in elderly people do occur. We have had three or four in this institution in persons over 70 years of age.

Bibliography

1. Geschickter, C. F., and Copeland, M. M.: Tumors of Bone, 3rd Edition. J. B. Lippincott Co., 1949, Philadelphia, page 698.
2. De Santo, D. A., and Wilson, P. D.: Xanthomatous Tumors of Joints. J. Bone and Joint Surg. 21:531-558, 1939.
3. Weaver, J. B.: Hemangiomata of the Lower Extremities. With Special Reference to Those of the Knee-Joint Capsule and the Phenomenon of Spontaneous Obliteration. J. Bone and Joint Surg. 20:731-749, 1938.
4. Kolodny, A.: Bone Sarcoma. Surgical Publishing Co., 1927, Chicago.
5. Coley, W. B.: Local Injury as a Causative Factor in Bone Sarcoma with Special Reference to the Medico-Legal Aspects. Publications of the Hospital for Ruptured and Crippled. Vol. V.

ACTIVITIES OF MEMBERS

Dr. M. M. Swan, Great Bend, has accepted an appointment as part time physician at the Great Bend annex of the Larned State Hospital.

* * *

Dr. Dan W. Bolton, Frankfort, has been appointed health officer for Marshall County for 1952.

* * *

Dr. Mahlon H. Delp, chairman of the Department of Postgraduate Medical Education at the University of Kansas School of Medicine, was one of the speakers at a regional meeting of the American Hospital Association held in Wichita recently. His subject was "The Function of the University Medical Center in Improving Care in Small Hospitals of the State."

* * *

The Arkansas City Medical and Surgical Clinic announces the addition of three physicians to its staff. Dr. Vernon L. Weeks, formerly of the Veterans Administration Hospital in Des Moines, and Dr. John W. Franklin, who is completing a residency at the University of Iowa Hospital, will specialize in internal medicine. Dr. William W. Kridelbaugh, now of the department of surgery at the

University of Iowa School of Medicine, will specialize in surgery.

* * *

Dr. E. S. Edgerton and Dr. Larry E. Vin Zant, Wichita, were speakers at a recent meeting of the Sedgwick County Chapter of the American Cancer Society.

* * *

Dr. Francis J. Bice, who has been practicing in Wakeeney since the end of World War II, closed his office there last month to go into active service with the Navy. He reported to Memphis, Tennessee, and was commissioned as Lieutenant Senior Grade.

* * *

Dr. A. N. Lemoine, Jr., chairman of the Department of Ophthalmology at the University of Kansas Medical Center, presented a paper, "Choice of Operation in Cataract Surgery," at the Pan-American Congress of Ophthalmology held in Mexico City in January. He also had an exhibit on cataract sutures at the meeting.

* * *

A feature story on Dr. H. L. Stelle, who has practiced in Pittsburg for 46 years, was published in a recent issue of the Pittsburg Headlight.

* * *

The Gelvin-Haughey Clinic, Concordia, announces that Dr. R. A. Chapman is a new member of its staff, specializing in internal medicine. He is a graduate of the University of Illinois School of Medicine, served his internship with the Navy and spent two years in the Navy medical corps. He recently completed a residency at the University of Illinois Hospital, Chicago.

* * *

Dr. Glen E. Martin, who formerly practiced in Paola and Goodland, has moved to Wakeeney and has opened an office there.

* * *

The Ashley Clinic, Chanute, announces that Dr. Don R. Abbuehl, a diplomate of the American Board of Surgery, is now a member of its staff. Dr. Abbuehl is a graduate of the University of Kansas School of Medicine, has had two years service with the Army medical corps, and has received surgical training at the V. A. hospital in Wadsworth.

* * *

Dr. Paul C. Laybourne, Jr., of the University of Kansas Medical Center, was speaker at the annual health education meeting of the Wyandotte County Medical Auxiliary held in Kansas City on February 12. His subject was "Emotions of Living."

* * *

Dr. Paul W. Schafer and Dr. Creighton A. Hardin, of the University of Kansas Medical Center, were speakers at a meeting of the Society of University Surgeons held at Johns Hopkins Hospital last month. They described a method of replacing part of a vital artery.

* * *

Two papers which originally appeared in the Jonurnal of the Kansas Medical Society were condensed in the February issue of Digest of Ophthalmology and Otolaryngology, "Congenital Toxoplasmosis" by Dr. Frances Ann Allen of Newton and "Glomus Jugulare Tumor" by Dr. David M. Gibson and Dr. G. O'Neil Proud of the University of Kansas School of Medicine.

* * *

Dr. Raymond A. Schwegler, Jr., Lawrence, is scheduled to appear as a speaker at the Fifth American Congress on Obstetrics and Gynecology at Cincinnati on April 4. His subject is "Prevention and Treatment of Postpartum Hemorrhage."

* * *

Dr. Louie F. Barney, Kansas City, a past president of the Kansas Medical Society and of the Wyandotte County Medical Society, has announced his retirement after having practiced in Kansas City for 48 years.

* * *

A county-wide celebration in honor of Dr. Lottie F. Law is being planned by clubs in Hill City for March 30. Dr. Law will complete a half century of medical service this spring.

* * *

Dr. George S. Hopkins, Topeka, has been appointed chief surgeon of the Santa Fe Railway, Panhandle and Santa Fe Railway, and the Atchison, Topeka and Santa Fe Hospital Association.

* * *

Dr. E. L. Gann, Emporia, was speaker at a recent meeting of the Outlook Club in that city. He discussed work of an ear, nose and throat specialist and showed a film on surgery for cancer of the larynx.

* * *

Dr. Middleton L. Perry, Topeka, was recently honored by the University of Tennessee Medical School, his alma mater, for nearly 60 years of medical service. An award from the university was presented to Dr. Perry at the February meeting of the Shawnee County Medical Society.

* * *

Dr. Albert C. Hatcher of Wellington and Dr. Karl Menninger of Topeka were recently named to the state advisory committee on adult boarding homes.

* * *

Dr. E. E. Brooks, Burden physician for the past 45 years, was guest of honor at a community celebration held recently. The address of the day was given by Governor Edward F. Arn.

Senior Thesis from the University of Kansas Medical School*

A Comparative Study of Insulins**

Herman W. Hiesterman, M.D.

Kansas City, Missouri

Mechanism of Action of Insulin

Much of the mechanism of the action of insulin is not yet understood. It appears to consist primarily in abolishing the inhibitory effect of an anterior pituitary hormone and other inhibitors on the hexokinase which phosphorylates glucose-6-phosphate, the form in which glucose is metabolized. Insulin exerts its action at more than one site in the huge metabolic pool of chemical equilibrium involving carbohydrate as well as protein and fat.

The blood sugar lowering action which insulin displays is brought about mainly by the following well established effects: (1) withdrawal of glucose from the blood and its deposition as glycogen in the muscles, (2) decrease of hepatic glycogenolysis, and (3) decrease of hepatic gluconeogenesis from non-carbohydrate precursors, namely, fat and protein.

Insulin decreases lipemia and cholesterolemia and prevents deposition of excess fat in the liver. It reduces the level of ketone bodies in the blood to normal, apparently by making unnecessary the excess conversion of fats to glucose. In diabetes it protects the remaining islet cells from exhaustion and subsequent degeneration. The formation of fat from carbohydrate is increased under the influence of insulin.

The serum potassium falls when insulin is administered because of an increased uptake of potassium by the body cells. Similarly, the inorganic phosphate of the blood is lowered as a result of the increased cell intake of phosphorylated hexoses.

Time Activity of Various Insulin Preparations

Five types of insulin have become available for use in diabetic therapy. They are: regular insulin, crystalline insulin, protamine zinc insulin, globin insulin with zinc, and NPH insulin. Each of these has characteristics which give it a definite place in the treatment of diabetes.

Unmodified Insulin: Regular insulin and crystalline insulin represent the hormone in a nearly true state. Regular insulin is a solution of amorphous insulin, whereas crystalline insulin is a solution of zinc insulin crystals. Their rates of action are similar although crystalline insulin is slightly less intense in effect and slightly more prolonged than regular insulin. This difference is insignificant, however, when compared with other modifications of insulin. The only important difference is that crystalline insulin, because of its lower protein content, produces fewer allergic reactions than does regular insulin.

Unmodified insulin is the most prompt in action and least prolonged of all insulin preparations. The characteristic effect of a single subcutaneous dose of unmodified insulin is demonstrable within an hour, reaches its peak in from three to six hours, then quickly subsides and is exhausted in about eight to 12 hours. These values are approximate and apply only to doses within the usual therapeutic range. With larger doses they are greater and with smaller doses they are less. Another factor playing an important role in the effective duration of a dose of insulin is the severity of diabetes. In mild diabetes the return of hyperglycemia is slower during waning insulin action than in severe diabetes. The above values are those seen in diabetes of moderate severity.

Protamine Zinc Insulin: This modification of insulin is a suspension of a relatively insoluble compound of insulin, protamine, and zinc in a buffered vehicle. A subcutaneous dose of this suspension forms a depot which releases insulin slowly so that its action is spread over a longer period of time.

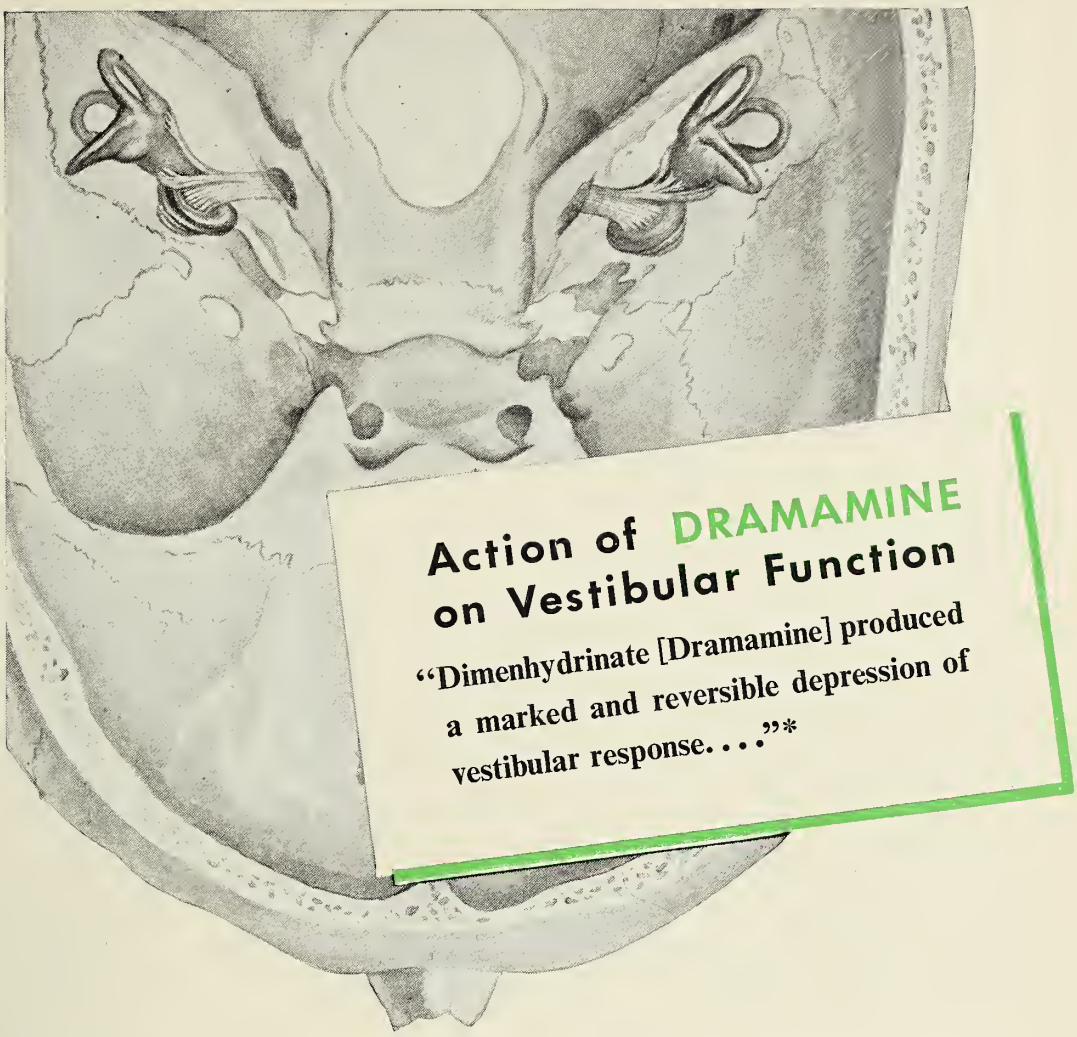
The average response of a single subcutaneous dose of protamine zinc insulin is demonstrable in four hours, reaches a prolonged peak in 24 hours, and is exhausted at the end of about three days. The peak effect of a single dose of protamine zinc insulin is weaker to the extent of one-fifth than that of a comparable dose of unmodified insulin, and correspondingly five times longer in duration.

With protamine zinc insulin it is possible to maintain prolonged insulin effect with infrequent injections. Control in mild diabetes is satisfactory with single daily doses, and even in severe diabetes there is smoother regulation of the blood sugar level. However, in severe diabetes its faults also become apparent. There is a definite tendency for the patient to develop postprandial glycosuria in the daytime and hypoglycemic shock at night.

To diminish this daily fluctuation, it has been the practice of many clinicians to so reduce the dosage

*This is one of 11 senior theses selected for publication by the Editorial Board from a group of 15 judged the best by the faculty of the University of Kansas School of Medicine.

**Thesis written while the author was a senior student at the University of Kansas School of Medicine. Dr. Hiesterman is now serving his internship at General Hospital, Kansas City, Missouri.



In a study of the action of Dramamine on vestibular function, Gutner and his associates found that Dramamine "significantly delayed the onset of nystagmus, shortened the duration of nystagmus and increased the milliamperage necessary to effect tilting."

The great effectiveness of Dramamine in motion sickness, they state, ". . . is probably related primarily to its ability to depress vestibular function. . . ."

DRAMAMINE®

BRAND OF DIMENHYDRINATE

—for prevention and treatment of motion sickness—

Now available in these dosage forms: { Tablets — 50 mg. / Liquid — 12 mg. per 4 cc. / Average dose — 50 mg.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

*Gutner, L. B.; Gould, W. J., and Batterman, R. D.: Action of Dimenhydrinate (Dramamine) and Other Drugs on Vestibular Function, Arch. Otolaryng. *53*:308 (March) 1951.

RESEARCH IN THE SERVICE OF MEDICINE **SEARLE**

of protamine zinc insulin that nocturnal hypoglycemia does not occur and to control the daytime hyperglycemia with ordinary insulin given by separate injection. This produces better control than can be achieved with either protamine zinc insulin or unmodified insulin used alone. The addition of a small amount of unmodified insulin to the larger dose of protamine zinc insulin in the same syringe is ineffective, since it is precipitated by the excess of protamine and loses its prompt action entirely on mixing.

Globin Insulin with Zinc: This form of depot insulin is prepared by the addition of zinc and globin from beef hemoglobin in quantities sufficient to result in a type of action intermediate between ordinary insulin and protamine zinc insulin.

As marketed today it has the advantage over protamine zinc insulin in being a clear solution and requires no agitation to insure even distribution of the insulin when a dose is withdrawn from the ampoule. It is also claimed that globin insulin causes fewer allergic reactions than protamine zinc insulin.

The effect of a large dose of globin insulin in diabetes of moderate severity is recognizable in two hours, reaches a peak in eight to 12 hours, thereafter wanes and lasts about 24 hours. At its height its action is more intense than protamine zinc insulin but less than ordinary insulin.

Globin insulin, like protamine zinc insulin, controls mild diabetes easily, but its faults stand out prominently in severe diabetes. In single large doses it exhibits a decided tendency to cause late afternoon insulin shock and at the same time it often wanes so rapidly in effect that an overnight hyperglycemia develops, giving heavy glycosuria in the early morning hours. It fails to span the 24-hour period adequately and does not give the overlapping so essential for good control.

Protamine Insulin Mixtures and Modifications: Because globin insulin and protamine zinc insulin fail to produce good control of severe diabetes by single daily injections, there has been a great deal of study on protamine zinc insulin modifications and with mixtures containing protamine zinc insulin and regular insulin.

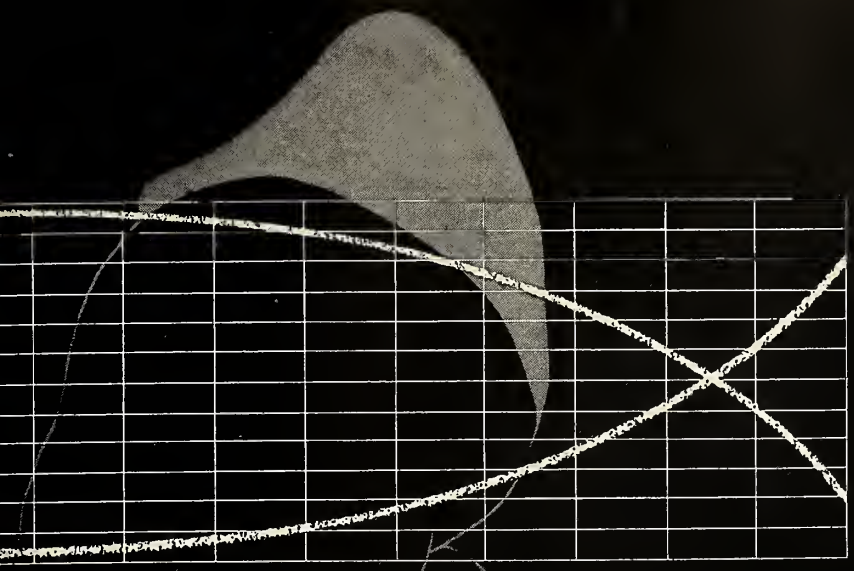
Colwell has demonstrated that excesses of regular insulin are necessary to produce appreciable alterations in the effect of protamine zinc insulin. His studies indicate that a mixture containing about twice as much regular insulin as protamine zinc insulin possesses the most desirable time activity to control severe diabetes by single daily injection. In a 2:1 mixture all the insulin is present in precipitated form and it is not a simple mixture of the two insulins of which it is composed. It represents an insulin-saturated protamine zinc complex which on injection releases its insulin more rapidly during

TABLE 1

Time-Activity of Single Large Doses of Various Types of Insulin in Diabetes of Moderate Severity (Approximate):*

Type of Insulin	*Action Demonstrable*	*Peak Action*	*Intensity at Peak*	*Duration of Effect*
Regular or Crystalline	1 hour	3-6 hrs.	Strong	8-12 hrs.
Globin with Zinc	2 hours	8-12 hrs.	Fairly Strong	24 hours at most
NPH Insulin	2 hours	10-20 hrs.	Moderate	28-30 hrs.
2:1 Mixture	4 hours	12-16 hrs.	Moderate	1½-2 days
Protamine Zinc	4-8 hours	24-32 hrs.	Weak	3 days or more

*From timing studies of Colwell with NPH insulin added.[4]



demand and supply

Stress states may bring about an increased *demand* for corticoid hormones that even a physiologically hyperactive adrenal cortex may fail to meet. In the shock following severe infections, burns, or major surgery, and in prolonged convalescence, the problem of *supply* may be answered by subcutaneous, intramuscular or intravenous injection of Upjohn Adrenal Cortex Extract.

Upjohn Adrenal Cortex Extract

Upjohn research in adrenal structure and function has aided the practice of medicine by the development of extracts which provide all of the natural adrenal cortical hormones.

Each cc. of Upjohn Adrenal Cortex Extract contains the biological activity equivalent to 0.1 mg. of 17-hydroxycorticosterone, as standardized by the Rat Liver-Glycogen Deposition test. Alcohol 10%.

Supplied in 10 cc. and 50 cc. vials.

a product of

Upjohn Research

for Medicine . . . Produced with care . . . Designed for health

THE UPJOHN COMPANY, KALAMAZOO, MICHIGAN

the first 12 hours than the second 12 hours. It is therefore more likely to control post-prandial glycosuria and less likely to cause nocturnal insulin shock.

In 1943, MacBryde and Roberts devised a somewhat similar modification of protamine zinc insulin in which protamine zinc insulin is suspended in a solution of insulin. It contains about 40 per cent as much protamine as protamine zinc insulin and is buffered so that about one-fourth of its insulin is in solution and three-fourths in the sediment. They designated this modification "NP 50."

Careful clinical and laboratory comparisons of the 2:1 mixture and NP 50 show them to be virtually indistinguishable in their time-activity. Both show reduction of sugar levels within four hours, attain their peak effect in 12 to 16 hours after injection, wane appreciably in effect at 24 hours, but maintain sufficient activity in the second day after injection to give desirable overlapping from dose to dose. In these respects they are actually intermediate in effect between protamine zinc insulin and globin insulin. Neither preparation is stable enough to meet rigid marketing specifications. There are also certain difficulties in the large scale production of a 2:1 mixture and NP 50 which are still not solved.

In patients requiring more than 20 units of insulin daily it has become popular in the past few years to use insulin mixtures freshly mixed in the syringe. Mixtures of 2:1 or 3:1 (regular insulin to protamine zinc insulin) are the ones most commonly used. This method requires the expenditure of considerable time by the doctor and patient. Actual demonstration of the technique is necessary and careful explanation and directions are imperative.

Additional objections to the procedure include: (1) increased chance for error in dosage, (2) dislike of some patients for the additional daily inconvenience, and (3) unsuitability for patients with limited intelligence or poor vision. Nevertheless, the reasonably satisfactory control of diabetes that usually results from properly adjusted tailor-made mixtures has justified their extensive use.

Modified Protamine Insulin (NPH-50; NPH Insulin): NPH insulin is a distinct entity. Its name is a composite of the following factors: N because it is neutral in reaction; P for protamine; H for Hagedorn who developed it; 50 because it is modified by the addition of 0.50 mg. of crystallized protamine for every 100 units of insulin—therefore, NPH-50 insulin, or, as it is more commonly called, NPH insulin.

The blood sugar lowering action of NPH insulin is relatively quick because it begins some two hours after injection, reaches its broad peak in 10 to 20 hours, and the duration of action is long, namely, 28 to 30 hours. From this description it is evident that NPH insulin somewhat resembles the 2:1 mixture of crystalline and protamine zinc insulin.

The duration of action is sufficient in most cases to assure an overlapping effect sufficient for satisfactory maintenance of blood sugar levels during fasting. Furthermore, the rather prompt onset of action of NPH insulin, being additive to the overlapping effect of the prior dose, is usually adequate to control the after-breakfast rise in blood sugar that formerly called for supplemental doses of unmodified insulin. In some severe cases, the action of NPH insulin may not be sufficiently intense in onset to prevent hyperglycemia after breakfast. In such instances it is advisable to add ordinary insulin to the NPH insulin as when mixtures have been used. The preparation does not absorb insulin to the same extent as does protamine zinc insulin. Therefore, one can anticipate a more direct reflection of the more rapid insulin effect.

Three hundred thirty-six patients of the Joslin Clinic were treated with NPH insulin. This group consisted largely of patients whose diabetes was characterized by its severity and in whom chemical control had been difficult. Of this group, 95 per cent were treated as successfully with daily injections of NPH insulin as with separate injections of crystalline and protamine zinc insulin. In only five per cent was NPH insulin less successful. The majority of these failures were in those patients whose requirements for long-acting insulin are small compared with their requirements for quick acting insulin.

Regulation of diet and exercise is a necessary adjunct to the treatment of diabetes with NPH insulin, just as it is with other forms of insulin now available. When administered before breakfast, the hypoglycemic hazard of NPH insulin is nocturnal rather than diurnal, although patients should be advised to watch for symptoms of hypoglycemia, particularly in the afternoon.

Wonderful though insulin is, the forms now available have three obvious defects: first, their administration is parenteral; second, their time of action is too slow, too short, or too long; and third, their hypoglycemic effect may be of abnormal degrees. The ideal insulin has been defined by Best and by Hagedorn as depot in type, one which would release insulin to the body when needed, and remain in depot when the blood sugar was within normal limits. Since this ideal insulin is not available, clinicians clamor for an insulin practical in nature with instant availability and with 24-hour action or more. NPH insulin has some of these desired clinical properties. It is considered by Kirkpatrick of the Mayo Clinic to be more convenient, safer and simpler than



Table without salt, mouth without saliva –

Randle Cotgrave (1611)[1]

The thought of meals without salt is unappealing to most patients who are placed on a salt-restricted diet.

The prescription of Neocurtasal can prove to be a most encouraging measure.

Neocurtasal is a "trustworthy, nonsodium-containing salt substitute"[2] designed to make the low sodium diet palatable.

For all salt (sodium)-free diets – Neocurtasal may be used wherever sodium restriction is indicated: congestive heart failure, hypertension, arteriosclerosis, pregnancy (to forestall tendency to fluid retention). It contains potassium chloride, ammonium chloride, potassium formate, calcium formate, magnesium citrate and starch. Potassium content 36%; chloride 39.3%; calcium 0.3%; magnesium 0.2%.

Neocurtasal®

SALT WITHOUT SODIUM

Available in 2 oz. shakers and 8 oz. bottles.

Winthrop-Stearns INC.
NEW YORK 18, N. Y. WINDSOR, ONT.

1. From Burton Stevenson's "Home Book of Proverbs, Maxims and Familiar Phrases:" Macmillan Co., 1948, p. 2028.
2. Heller, E. M.: The Treatment of Essential Hypertension. *Canad. Med. Assn. Jour.*, 61:293-299, Sept., 1949.

Neocurtasal, trademark reg. U. S. & Canada

either protamine zinc insulin or insulin mixtures.

Literally dozens of other insulin combinations with prolonged action have been described in the literature. To undertake a critical appraisal of their merits would be impossible for lack of comparative data. A summary of the type of combinations, their names, the dates of report, the investigators and the distinguishing characteristics has been prepared by Colwell, Izzo and Stryker.

Insulin Substitutes

The use of insulin for treatment of diabetes mellitus is an entirely satisfactory and successful therapeutic measure. The fact that insulin is ineffective when administered orally has led to efforts to obtain non-toxic insulin substitutes which are active when given by mouth. At present, however, no substance fulfilling these requirements has been prepared.

Many guanidine derivatives have a blood sugar reducing power. Several of these derivatives, of which Synthalin and Neosynthalin are the foremost examples, were used for a time in the treatment of certain diabetic cases. At first excellent results were claimed for both of them. Later work revealed that these compounds, after prolonged use, produced serious liver and kidney damage. Their clinical use has been practically discontinued.

A solution of colloidal sulfur on oral or parenteral administration, or rubbing sulfur into the skin will produce hypoglycemia in normal rabbits. Before the discovery of insulin, sulfur baths had frequently been employed in the treatment of diabetes, and favorable results were occasionally observed in mild cases.

Since finding that insulin is protein in nature many investigators have studied the possible hypoglycemic effect of the different amino acids, especially those which are present in the insulin molecule. Cystine, taurine, and cystamine show some hypoglycemic effect.

Collip and other workers have prepared extracts from various natural sources of which the following showed some antiglycemic activity: onion tips, sprouted grain, beet tops, beans, celery, cabbage, lettuce, mulberry leaves, wild carrot, sumac, American blueberries, Jerusalem artichoke, clam tissue, yeast, bacteria, and egg yolk. While extracts of these substances apparently reduce the blood sugar level, this phenomenon occurs only after a latent period of several hours to several days and the results are unreliable and unpredictable.

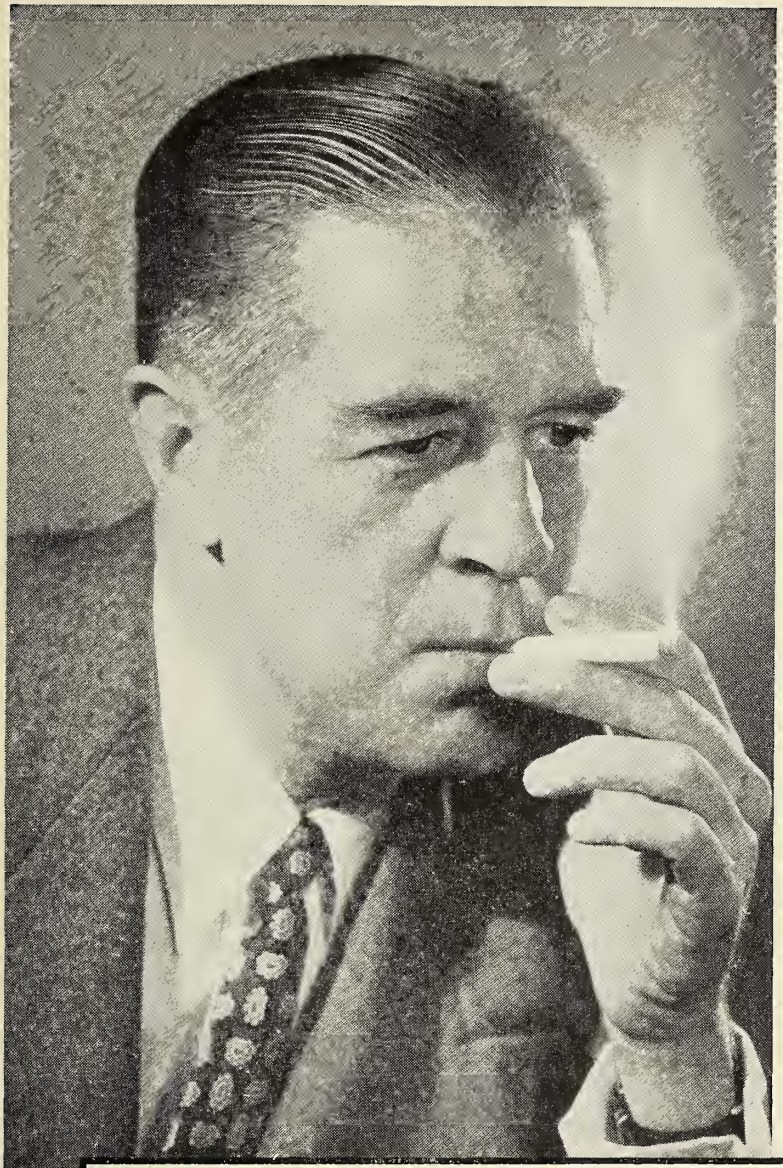
Clinical trials of insulin substitutes given orally have demonstrated on occasion a decrease in glycosuria during the course of treatment. However, the degree of glycosuria observed in cases of mild diabetes is a rather unsatisfactory index to the therapeutic efficiency of diabetic remedies, since the carbohydrate metabolism in such cases varies with both the diet and the general condition of the patient. Furthermore, it should be pointed out that the hypoglycemic action of insulin is not the only specific property of the hormone. An appreciable number of substances exist which will depress the blood sugar level in animals, but more careful work has generally shown that, in spite of the superficial similarity in effect, the physiological action of these substances is quite different from that exhibited by insulin itself. It is therefore obvious that every new insulin substitute should first be carefully studied in normal and depancreatized animals before its clinical trial on diabetic patients is attempted.

Summary

Outstanding features of insulin's chemistry and physiological actions are briefly outlined. Unmodified insulin, as far as is known, represents the true hormone in slightly acid solution. All modifications stem from it and do not alter its action except as they prolong the rate of activity. Protamine zinc insulin is the oldest of the modified insulins and has a weak but prolonged effect lasting up to 72 hours. Globin insulin, NPH insulin, and the 2:1 mixture all possess time-activity intermediate between insulin and protamine zinc insulin. At present it appears that most cases of diabetes mellitus can be well controlled by single daily injections of NPH insulin, thus obviating the use of mixtures and multiple daily injections except under special circumstances. Many other substances besides insulin have been shown to possess anti-glycemic activity, but to date no satisfactory insulin substitute has been found.

Bibliography

1. Adlersberg and Dolger: Insulin Mixtures in the Treatment of Diabetes, J.A.M.A., 128:414, 1945.
2. Beaser, S. B.: Diabetes Mellitus, N.E. J. Med., 243:3, July 20, 1950.
3. Beaser, S. B.: Diabetes Mellitus, N.E. J. Med., 243:4, July 27, 1950.
4. Colwell, A. R.: Effective Insulin Timing in Diabetes Mellitus, M. Clin. North Am., 327, March, 1947.
5. Colwell, A. R., Izzo, J. L., and Stryker, W. A.: Intermediate Action of Mixtures of Soluble Insulin and PZI, Arch. Int. Med., 69:931, 1942.
6. Colwell, A. R., and Izzo, J. L.: PZI Modified for Accelerated Action, J.A.M.A., 122-1231, 1943.
7. Colwell, A. R.: Nature and Time Action of Modifications of PZI, Arch. Int. Med., 74:331, 1944.
8. Colwell, A. R.: Protamine Insulin Mixtures in the Treatment of Diabetes Mellitus, New York State J. Med., 47:1103, 1947.
9. Duncan, G. G., and Barnes, C. E.: The Action of Globin Insulin Compared with that of Crystalline, Unmodified, and PZI, Am. J. M. Sc., 202:553, 1941.
10. Editorial: NPH Insulin, Physicians Bulletin, Sept.-Oct., 1950.
11. Editorial: The Chemistry of Insulin, Brit. M. J., 2:225, 1949.
12. Fortier, G.: The Antidiabetic Properties of Rhus Typhina (Sumac), Laval Med., 14:477 (Diabetes Abstracts, 9:3, 1950).
13. Gabriele, A. J., and Marble, A.: Clinical Experience with a New Modified Protamine Insulin (NPH-50), Am. J. Digest Dis., 16:197, 1949.
14. Guerra: Pharmacology of Antidiabetic Mexican Plants, Tecoma Mollis, and Contarea Latiflora, Diabetes Abstracts, 1948.



Doctor, be your own judge... try this simple test

With so many claims made in cigarette advertising, you, Doctor, no doubt prefer to judge for yourself. So won't you make this simple test?

Take a PHILIP MORRIS and any other cigarette

1. Light up either one first. Take a puff—get a good mouthful of smoke—and s-l-o-w-l-y let the smoke come *directly* through your nose.
2. Now, do exactly the same thing with the other cigarette.

You will notice a distinct difference between PHILIP MORRIS and any other leading brand.

PHILIP MORRIS

Philip Morris & Co. Ltd., Inc., 100 Park Avenue, New York 17, N. Y.

15. Hagedorn, H. C., Jensen, B. N., Krarup, N. B., and Wodstrup, I: Protamine Insulinate, Acta. Med. Scandinav. (Supp.) 78:678, 1936.
16. Handelsman, M. B.: Insulin in Diabetes, Bull. U. S. Army Med. Dept., 8:463, 1948.
17. Hildebrand, A., and Rynearson, E. H.: Clinical Experience with PZ and Unmodified Insulins, Arch. Int. Med., 72:37, 1943.
18. Houssay: Action of Sulfur Compounds on Carbohydrate Metabolism and on Diabetes, Am. J. M. Sc., 219:353, 1950.
19. Ibem: Modified PZI, Improvement on Standard PZI, J.A.M.A., 122:1225, 1943.
20. Jensen, H. F.: Insulin, Its Chemistry and Physiology, New York, Oxford Univ. Press, 1939.
21. Kirkpatrick, N. R.: Experiences with New Insulin, Proc. Staff Meet. Mayo Clinic, 24:365, 1949.
22. Krayenbuhl, C., and Rosenberg, T.: Crystalline Protamine Insulin, Rep. Steno Mem. Hosp., 1:60, 1946.
23. Lewis, J. J.: Cabbage Extracts and Insulin-like Activity, Brit. J. Pharm., 5:21, March, 1950 (Diabetes Abstracts, 9:4, 1950).
24. MacBryde, C. M., and Roberts, H. K.: Modified PZI, an Improvement on Market PZI, Proc. Central Soc. Clin. Research, 15:7, 1942.
25. MacBryde, C. M., and Roberts, H. K.: A New Modified PZI, Comparison with Histone Zinc Insulin, Clear and Standard PZI, J. Clin. Inves., 22:791, 1943.
26. Palmer, L. J.. and Peck, F. B.: Official Syringe of the Am. Diabetes Assn., J.A.M.A., 139:7, 1949.
27. Peck, F. B.: The Insulins in Diabetes, Mod. Med., 17:64, 1949.
28. Peck, F. B.: Insulin Mixtures and Modifications, M. Clin. North Am., 343, March, 1947.
29. Pollack, H.: The Handling of Insulin, A D A Forecast, 3:1, Jan., 1950.
30. Reiner, L., Searle, D. S., and Lang, E. H.: On Hypoglycemic Activity of Globin Insulin, J. Pharm. and Exp. Therap., 67:330-340, 1939.
31. Rohr, J. H., and Colwell, C. R.: Comparative Time Action of Globin Insulins, Arch. Int. Med., 82:54-62, 1948.
32. Sanger, Species Differences in Insulins, Nature, London, 164:529 (Diabetes Abstracts, Vol. 9 No. 4, 1950).
33. Sclessor, A., and Nicol, T.: Di-insulin, a Clinical Trial, Lancet, 1:820, 1947.
34. Scott, D. A., and Fisher, A. M.: Studies on Insulin with Protamine, J. Pharm. and Exp. Therap., 58:78, 1936.
35. Scott, C. A., and Fisher, A. M.: The Effect of Various Substances on the Action of Insulin, J. Pharm. and Exp. Therap., 58:93, 1936.
36. Sharkey, T. P.: New Modified PZI (NPH-50) Ohio State M.J., 46:446, May, 1950.
37. Sparks, M. I., and John, H. J.: The Clinical Use of Mixtures of Insulin, Ohio State M.J., 39:226, 1943.
38. Sprague: Mixtures of PZI and Regular Insulin, Ann. Int. Med., 31:628, 1949.
39. Stetten, D., Jr.: Carbohydrate Metabolism, Am. J. Med., 7:571-584, 1949.
40. Ulrich, Helmuth: Clinical Experiments with Standard and PZI, Ann. Int. Med., 14:1166, 1941.
41. Weisel: Insulin Mixtures, Am. J. Med., 7:655, 1949.
42. White, P.: Modified Protamine Insuline (NPH-50), A Clinical Report, J.A.M.A., 141:312, 1949.
43. Wilder, R. M.: Insulin Mixtures and Conservation of Insulin, Am. J. Med., 5:532, 1948.
44. Kuppers-Sonnenberg, G. A. (Europe): Prophylactic Control of Diabetes Mellitus with Jerusalem Artichoke, Therap. d. Gegnw., 6:176-78, Jan., 1949 (Diabetes Abstracts, 1950).

COUNTY SOCIETIES

A meeting of the Shawnee County Society was held at the Hotel Jayhawk, Topeka, on February 5. Dr. Galen M. Tice, of the University of Kansas Medical Center, Kansas City, spoke on "Pediatric Roentgenology." With this meeting the society returned to a former practice of having a dinner precede the scientific and business sessions.

* * *

Officers of the Smith County Society were elected at a meeting held January 22 at the home of Dr. Victor E. Watts, Smith Center. Dr. F. H. Relihan was named president; Dr. Lafe W. Bauer, vice president; Dr. Watts, secretary; Dr. Buford Hartman and Dr. Bauer, delegates to the state meeting to be held in April.

The Nemaha County Society met in Sabetha on January 22. Dr. J. Stone, a dentist, who recently returned from Korea, told of his experiences. The following officers were elected: president, Dr. C. C. Hunnicutt, Sabetha; vice president, Dr. J. H. Gilbert, Seneca; secretary, Dr. T. A. Montgomery, Sabetha.

* * *

A meeting of the Wilson County Society was held at the Blue Tea Room, Neodesha, February 13. Mrs. Margaret Foster, Topeka, a representative of Blue Cross-Blue Shield, was speaker of the evening.

* * *

A meeting of the Montgomery County Society was held in Independence on February 20 with the county welfare director, Mr. W. O. Campbell, as a guest. Medical service for welfare recipients was the subject of the meeting, and the president, Dr. J. D. McMillion, appointed Dr. Porter M. Clark and Dr. William R. Beine to a committee to work out details of a possible new contract.

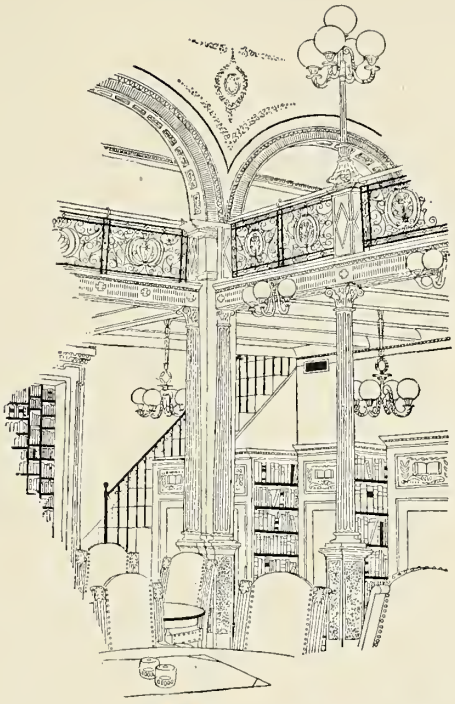
Experimental Animals Necessary

The necessity for using experimental animals in research was pointed out recently by Dr. C. J. Van Slyke, director of the National Heart Institute, who stated that approximately 170 cardiovascular research projects now being carried out are dependent upon such animals for completion.

"The problem of heart disease is increasingly serious," Dr. Van Slyke said, "not only because it is the leading cause of death and disability, but because of a growing and aging population. Investigators carrying forward heart research under National Institute grants have found that the laboratory animal plays a vital role. Animal studies must precede application of new methods to human beings. The need has been established on the basis of the fact that most of the great discoveries to improve human health in the past 50 years have been at least in part the direct result of animal studies."

Mentioned as an example was a technique developed toward the eventual repair of defects of the muscular wall inside the human heart. Such defects have been closed in the hearts of dogs with two part-plastic buttons.

Seven scientists receiving heart research grants have recently reported progress on the perfection of an artificial heart, or combination heart-lung machine. They have been able to carry the circulation of dogs in their machines for as long as 127 minutes. Motion pictures have been made which illustrate the operations and the healthy condition of the animals following the mechanical heart-lung substitution.



from

among all

antibiotics

Pediatricians

often choose

AUREOMYCIN

Hydrochloride Crystalline

because . . . Aureomycin may be given by the oral, or in an emergency by the intravenous, route. Aureomycin readily and rapidly diffuses into all the tissues and fluids of the body.

Aureomycin in divided small dosage has given serum levels comparable with those following one large dose.

Aureomycin is clinically effective in the control of infections of bacterial, rickettsial, and large viral origin.

Aureomycin has been reported to be effective against susceptible organisms in: Bronchiolitis • Bronchitis • Colitis • Epidemic Diarrhea • Childhood Genitourinary Infections • Laryngotrachcobronchitis • Secondary Infections following Measles • Mucoviscidosis (pancreatic fibrosis) • Neonatal Infection • Otitis Media • Mastoiditis • Pertussis Pneumonia • Scarlet Fever • Secondary Invasion following Varicella

Throughout the world, as in the United States, aureomycin is recognized as a broad spectrum antibiotic of established effectiveness.

Capsules: 50 mg.—Bottles of 25 and 100. 250 mg.—Bottles of 16 and 100.
Ophthalmic: Vials of 25 mg. with dropper; solution prepared by adding 5 cc. of distilled water.

LEDERLE LABORATORIES DIVISION AMERICAN CYANAMID COMPANY 30 Rockefeller Plaza, New York 20, N.Y.

ANNOUNCEMENTS

A contest open to physicians serving residencies or internships in medicine in approved hospitals has been announced by the Kansas City Southwest Clinical Society, 630 Shukert Building, Kansas City 6, Missouri. Applications for participation in the contest must be made in writing to the executive office of the society on or before May 15, 1952.

Papers submitted must be original work of the physician, compiled during his service in the hospital, including experimental laboratory work. Contestants must have graduated from approved medical schools and must be members of their respective county or state medical societies, effective with the graduating class of 1945 to date.

* * *

The American College of Allergists will hold its annual meeting at the William Penn Hotel, Pittsburgh, Pennsylvania, April 7-9. Physicians are invited to attend and may secure additional information from the College, LaSalle Medical Building, Minneapolis 2, Minnesota.

In addition to 20 addresses on general topics and scientific investigations, there will be round table luncheons and sectional meetings devoted exclusively to the psychosomatic aspects of the allergic patient, allergy in infants and children, allergic manifestations in the skin, eye, ear, nose and throat. One session will be devoted to the problems of the allergic patient as met in industrial medicine.

Preceding the meeting, on April 4-6, the College will offer a graduate instructional course in allergy with 60 well known authorities taking part in the program, designed especially for general practitioners.

* * *

The Fifth American Congress on Obstetrics and Gynecology will be held in Cincinnati's Netherland-Plaza Hotel, March 31 through April 4, under the sponsorship of the American Committee on Maternal Welfare. Included on the program will be a report on proposed legislation for Emergency Maternal and Infant Care by Dr. Joseph Lawrence, director of the A.M.A. Washington office. Techniques, conclusions and follow-up action in Chicago's recent study of 10,000 neonatal deaths will be presented in a symposium.

* * *

The annual dinner meeting of the Wichita Foundation of Medical Research will be held on Monday, May 26, at 6:30 p.m. at the Hotel Lassen, Wichita. Dr. T. G. Blocker, Jr., professor of plastic surgery at the University of Texas School of Medicine, Galveston, will speak on "Research Problems in Plastic Surgery." All physicians are cordially invited to attend and may secure information and reservations from Dr. M. M. Tinterow, 306 KFH Building, Wichita 2, Kansas.

Speedy X-rays for Army

To increase further the mobility of its forward surgical hospitals in Korea and to accelerate screening of casualties, the Army Medical Service recently announced that it would begin using a new, portable field x-ray unit and 60-second developer as soon as shipment can be made to the combat theater.

The 500-pound machine, half the weight of the model now in use, can be completely assembled or dismantled in five minutes. It can be transported by jeep, airdropped, or subjected to the most unfavorable atmospheric conditions without impairing its efficiency.

It consists of two metal chests, including a portable field generator. The high-speed developer produces finished, positive x-ray film in 60 seconds. During complex fracture surgery when x-rays are taken throughout the operation to determine the exact position of bones after each manipulation, fast developing will be particularly valuable. The developing unit requires neither liquid chemicals nor darkroom processing, and instead uses a gelatin-like capsule of chemicals to produce a clear image which may be read without the aid of an illuminator.

The 93rd annual meeting of the Kansas Medical Society will be held in Kansas City, Kansas, April 27 through May 1, with scientific sessions beginning on Tuesday, April 29. Hotel reservations are to be made through the Kansas City Chamber of Commerce, Town House, Kansas City, Kansas.

DEATH NOTICES

JAMES WALDO RISDON, M.D.

Dr. J. W. Risdon, 74, an active member of the Leavenworth County Medical Society and a past president of that group, suffered a fatal heart attack while playing golf at the Leavenworth Country Club on January 30. He was graduated from the University Medical College, Kansas City, in 1905, and immediately after began practice in Leavenworth. For the past 33 years he had been practicing in association with Dr. D. R. Sterett, specializing in surgery. He was active in Rotary Club work and had served as president of the Leavenworth club.

Your Laboratories . . .
Our Responsibility



Duncan Laboratories
Established 1921
KANSAS CITY, MO., *909 Argyle Bldg.*
JOPLIN, MO., *230 Frisco Bldg.*

Associated Laboratories
INDEPENDENCE, MO.
Physicians Laboratory
First National Bank Bldg.
LEXINGTON, MO.
Lexington Memorial Hospital
SEDALIA, MO.
Bothwell Memorial Hospital
WARRENSBURG, MO.
Warrensburg Medical Center

Curbstone Consultation

All diabetic patients should have a chest X-ray once a year because

THE INCIDENCE OF TUBERCULOSIS AMONG DIABETIC PATIENTS AS COMPARED WITH NON-DIABETIC PATIENTS IS THREE TIMES GREATER IN ADULTS, 13 TIMES GREATER IN CHILDREN OF SCHOOL AGE, 16 TIMES GREATER AMONG ADOLESCENTS.

Theoretically, this increased susceptibility is due to the imperfect epithelialization of the respiratory tract due to the inability of the diseased liver of the diabetic to convert carotene into vitamin A.

Banyai and Cadden, Arch. Int. Med., p. 445-6, 1944.
Foley and Andosca, Med. Cl. North Amer. 28, p, 499-505, March, 1944.

Pathologically Speaking

THE FROG TEST FOR PREGNANCY

WITHIN the past five years, the advantages as to accuracy, speed of performance, and simplicity of technique of the frog test for pregnancy have been recognized in most clinical laboratories.

Accurate diagnosis in the first half of pregnancy occurs in about 95% of cases, but the incidence of false negatives in the latter half of pregnancy increases. To date, only rare false positives have been reported, one presumably related to estrogen therapy in the patient and a few others occuring in patients with jaundice; most investigators report no false positives in large series of cases.

Either the first morning specimen of urine or blood serum obtained in the fasting state is used. It is always preferable to obtain blood from the patient since one may at any time encounter the woman who submits a urine specimen from another individual for purposes of obtaining an opposite report.

Serum and/or urine is injected into the dorsal lymph sac of the ordinary male frog. The subsequent release of sperm by the frog constitutes a positive test for pregnancy. In most cases, the frog will have passed sperm (or they can be obtained via capillary tubing from the cloaca) within two hours following injection; many positive tests show sperm within 30 minutes after injection.

Occasionally a specimen which yields a false negative result in the frog may register positive in the rabbit, and hence it is the practise in many laboratories (including ours) to follow all negative frog tests with a Friedman.

RALPH EMERSON DUNCAN, M. D.
LORAINE E. SCHULTZ, M. D.
ALBERT E. UPSHER, M. D.

THE KANSAS PRESS LOOKS AT MEDICINE

Editor's Note. In this section the Journal reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

Taxes Well Spent

One cannot visit the KU Medical Center in Kansas City, Kansas, even briefly, without coming away full of admiration and praise for the progress all Kansas medicine is making there.

It's a never-ending job, teaching hundreds of young men and women to be the doctors and nurses of an early tomorrow. To do it this huge medicine center has collected an excellent practicing faculty. It runs large clinics at which young physicians have the chance to observe experienced staff physicians at work in all the various specialties. The clinics of course are a godsend to the thousands of people in that area who could not otherwise afford good medical care.

On the KU medical center site, the sound of the builder is never stilled. More new buildings are being erected, still others are being planned. The medical center which will serve this state tomorrow is going to be a bigger and better one than the one we have today.

We have teams of medical experts today who go out regularly on clinic trips over the state, keeping the practicing Kansas physician abreast of the latest advances in medical science.

The next step possibly may be clinical centers of more permanent nature located in various parts of the state which will present the facilities for spreading even more the vast wealth of information and know-how techniques the KU center has collected.

Certainly the tax dollar which goes into the medical center and this mushrooming educational program is well spent. The program launched by Dr. Franklin Murphy, which has won national acclaim, is not to be sidetracked, neglected, or stalled.

As long as American medicine can sponsor within itself the great surge we have today in Kansas, the false theory of socialized medicine will make no great inroads here.—*Garden City Telegram, February 19, 1952.*

New Type of Resuscitator Developed

A mechanical artificial resuscitator, so light and compact that it can be carried in the standard gas mask carrier along with the mask, has been developed by the Army Chemical Corps and is now being standardized. It can be operated in combat by one man.

The device was developed specifically to provide treatment under combat conditions for troop casualties that might result from an enemy attack with gases.

The new resuscitator is a modification of the mouth-to-mouth forced breathing that is frequently used on choking babies. It consists of a length of corrugated rubber tubing that is connected to the gas masks of both the operator and the victim. The operator inhales clean air through his own canister and by exhaling forces it into the lungs of the victim. The victim exhales through a valve in the side of the tube. Tests show that the forced breathing is not unduly tiring to the operator and can be carried on for more than an hour.

Program for Aging Workers

Government and industry were urged to discard the economically-wasteful and socially harmful policy of compulsory employee retirement at age 65 at a conference on aging held in January under the auspices of the National Social Welfare Association and the McGregor Fund of Detroit. Attending were 75 experts in industrial relations, medicine, labor and education.

The conferees agreed that retirement solely on the basis of age was socially wasteful and that "older persons willing and able to meet job requirements could make a positive contribution to the national economy." The country is now losing the potential labor of 1,500,000 persons. Plans should be made for a constructive program to deal with the growing problem of older persons.

Dr. Theodore G. Klumpp, president of Winthrop-Stearns, Inc., declared that retirement by chronological age would become a "crisis" in 30 years unless "solutions are found to keep a growing older and healthier population out of idleness." He noted that by 1980 we will have some 66,000,000 persons over 45 and something in the neighborhood of 24,000,000 of age 65 and over.

Industry representatives at the conference were at odds over the retirement problem. One view held that the individual worker should be permitted to make the decision, while others felt that compulsory retirement at 65 had worked well and was economically desirable.

A number of experts cautioned that the cost of maintaining an aging population would become prohibitive and that such a population might develop a social-political force threatening the existing mores in the community.

"PREMARIN"®

Highly effective • Well tolerated • Imparts a feeling of well-being

"PREMARIN"

Most menopausal patients
experience striking relief
of symptoms with "Premarin."

"PREMARIN"

Estrogenic Substances (water-soluble)

"PREMARIN"



also known as Conjugated Estrogens (equine)

"PREMARIN"

5202 AYERST, McKENNA & HARRISON Limited • New York, N. Y. • Montreal, Canada



BOOK REVIEWS

Introduction to Medical Science. By Jensen and Noller. Published by C. V. Mosby Company, St. Louis. 533 pages, 71 illustrations. Price $5.75.

Since the growth of the Integrated Teaching Program, nursing schools no longer give and label a course as "Introduction to Medical Science." However, this book has many areas which would be valuable for reference to students throughout their entire training period.

The unit "Development of Medical Science" is concisely written in an interesting manner and should be helpful. The separate presentations of signs and symptoms should save the usual confusion in these areas. Many illustrations, including radiographic illustrations, help make the clearly written section of "How the Doctor Makes the Diagnosis" excellent. The nurse doesn't need complete information on test methods. In this section she can quickly find a wealth of help.

One wonders why nursing care was included. Only two brief pages are given to it. Most of this brief area is given to discussion of physical well being and mentions only the great support she can give and a definite need for her to understand the mental needs of her patient.

The nurse would find very little help in the unit of "How Disease is Treated."

It is a pleasure to find a large, valuable and interesting area on "Control and Prevention of Disease."

"Introduction to Medical Science" should be a favorite and well used reference authority for students in all areas of their training as well as for alert graduate nurses.—*H.A.*

* * *

Biological Antagonism: The Theory of Biological Relativity. By Gustav J. Martin. Published by the Blakiston Company, Philadelphia. 516 pages, 64 figures, 44 tables. Price $8.50.

This compact book summarizes a great deal of the knowledge that has been accumulated by one of our newest biological sciences. Written by a chemist, it deals at greatest length with chemical phenomena although it contains items of interest to the pharmacologist and chemotherapist.

The main thesis of the book is that in the field of biology, as in the physical sciences, or more so, all things are relative; there are no examples of absolute specificity. The thesis is further developed that biological reactions, chemotherapeutic efficacy and pharmacologic responses are dependent upon one of two general actions: the displacement of a metabolite or the inhibition of an enzyme system.

The importance of protein as building block, enzyme and "receptor" is pointed up; in the system of biological relativity protein is the key. Interestingly, it is shown that the shape of the protein, either fibrous or globular, determines to a large extent what function the protein will have. Finally, the essential similarity between enzymes and what we called, for want of a better term, "receptor" is clarified.

This book is pointed toward the biochemist and pharmacologist although it will make interesting reading for any student of the biological sciences. It should be added that it is weakest in its discussion of pharmacology and strongest in its discussion of biochemistry. Although the reading is sometimes tedious there is, at the end of each chapter, a brief recapitulation that serves to orient the reader to the thesis that is being developed.—*W.C.W.*

* * *

Untoward Reactions of Cortisone and ACTH. By Vincent J. Derbes and Thomas E. Weiss. Published by Charles C. Thomas, Springfield, Illinois. 77 pages. Price $2.25.

This very timely monograph on the untoward reactions from cortisone and ACTH should be in the library of every physician who uses these potent drugs.

An excellent bibliography is included at the end of the monograph.—*W.L.V.*

Help for Cerebral Palsied

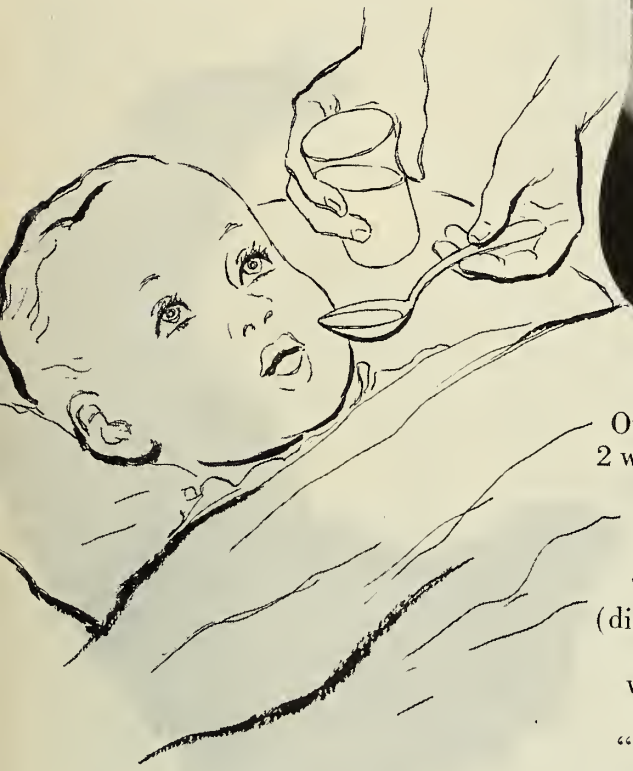
Encouraging progress in improving the condition of the cerebral palsied during the past year was reported recently at a meeting of United Cerebral Palsy in Chicago. Donations in 1951 more than doubled the previous year's total, $1,022,000, showing that the American people are becoming more aware of the gravity of this need.

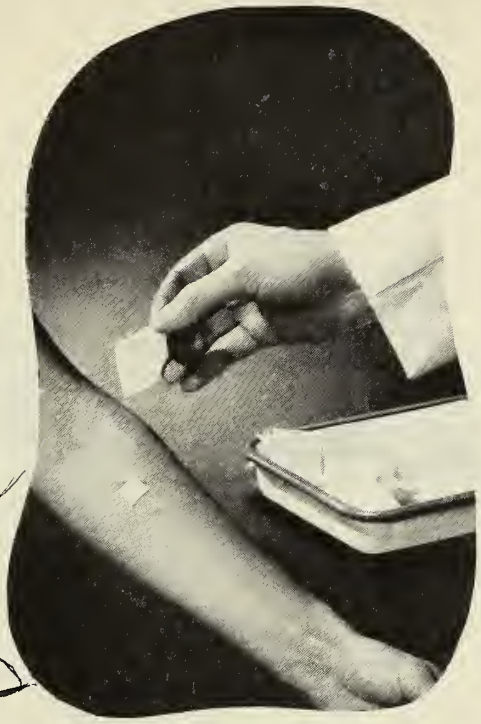
The additional funds have made possible the expansion of services, increase in existing facilities for diagnosis, treatment, care and education; establishment of new clinics and treatment centers, and the initiation of research and training projects totaling $169,679 in 18 universities and hospitals. Scientists and physicians interested in the problem of cerebral palsy may apply for grants to United Cerebral Palsy, 50 West 57th Street, New York 19, New York.

A new book, *Environment and Health,* was recently published by the U. S. Public Health Service to stress the fact that "the modern concept of health is not simply freedom from suffering but the positive enjoyment of life in wholesome surroundings." Copies may be secured from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

citrus is virtually

NON-ALLERGENIC





TYPICAL PATCH TEST

Over 400 infants and children from 2 weeks to 6 years of age acted as test subjects to check the incidence of sensitivity to orange juice. After 2 to 12 months' observation,* "no disturbance of bowel function (diarrhea or constipation) that could be attributed to the orange juice" was found. Also, the occurrence of regurgitation and rashes was "minimal". In the rare instances of sensitivity, care exercised by gentle reaming of juice (or the use of frozen concentrate) to avoid contamination with peel oil usually obviates the difficulty.

**J. Pediat. 39:325, 1951*

FLORIDA CITRUS COMMISSION • LAKELAND, FLORIDA

UNIVERSITY OF MARYLAND
LIBRARY
Founded 1813
SCHOOL OF MEDICINE

FLORIDA *Citrus*

ORANGES • GRAPEFRUIT • TANGERINES

ABSTRACTS FROM CURRENT LITERATURE

Arterial Hypertension

Arterial Hypertension: Prognosis. By Arthur H. Greip, Winston Hall, George R. Barry and Sibley W. Hooble, Am. Jnl. Med. Sci., 221:3, 239-249, Mar., 1941.

The authors studied 117 consecutive patients under age 53 with blood pressures which exceeded 160/110 on two or more occasions and who were observed over a period of eight to 10 years. When originally studied, these patients had neither primary renal disease, coronary thrombosis, recent cerebrovascular accidents, congestive failure or severe renal impairment. The report deals with three aspects: 1. Gross mortality rate and type of death; 2. Factors influencing prognosis; 3. Status of the survivors.

1. Of the 117 patients, 46 per cent died from hypertensive complications (equally divided between cardiac and cerebrovascular accidents), two per cent from unknown causes, six per cent from reasons unrelated to high blood pressure. Forty-six per cent were alive at the end of the 10-year interval. Uremic deaths were uncommon.

2. (a) Sex influenced prognosis in that females with comparable hypertension outlived males in a ratio of 3:2.

(b) Initially observed hypertensive complications (i.e.: electrocardiographic abnormality, cardiac enlargement, history of cerebrovascular accident or focal encephalopathy) indicated a poor prognosis.

(c) Initial high diastolic pressure tended to predispose to the hypertensive complications mentioned above, and this provided a poor prognosis. Excluding such complications, it was by no means certain that blood pressure levels bear any important relation to prognosis.

(d) The effect of the patient's age and the duration of hypertension was of prognostic significance as follows: Uncomplicated hypertension in older patients had a slightly higher mortality rate but complicated hypertension had a definitely higher mortality in the younger age groups. The known duration of hypertension had no prognostic importance.

(e) Cardiac complications proved bad prognostic evidence. Enlargement was more serious than EKG abnormalities. As many deaths in this group were cerebrovascular as cardiac.

(f) Viewed from the aspect of CNS symptoms, nothing was conclusive. Those patients with headaches and dizziness had no higher mortality rate than a similar number who had no such complaints. Retinopathy was more frequently a precursor of CVA than any subjective complaint.

(g) Retinopathy was not observed to foretell the type of death but was a guide to the degree of vascular degeneration.

(h) Concerning the renal status and prognosis, persistent albuminuria was the most dependable sign, though decreased urea clearance as an evidence of impaired renal function foretold a poor prognosis.

(i) Blood pressure changes deserve mention. There was a general tendency for it to fall slightly in cases with cerebral deaths and to rise in patients with cardiac deaths. There was no evidence that a rising blood pressure predisposed to cerebrovascular accidents.

3. Of the 51 living patients, 19 were asymptomatic, 61 per cent had mild symptoms and all, totaling 80 per cent of this group which is 35 per cent of the entire series, were capable of doing their daily work. Forty-three per cent of all the females and 13 per cent of all the males fell in this category. The gross mortality over a nine-year period was 50 per cent compared to an expected mortality of 7.8 per cent for the same interval of the normal U. S. population of the same age, sex and color distribution.

In order of individual importance, the following aspects influenced prognosis: Hypertensive complications: cardiac enlargement, persistent albuminuria, history of encephalopathy or cerebrovascular accident; 2. Height of the diastolic pressure; 3. Male sex; 4. Abnormality of the EKG; 5. Hypertensive retinopathy.

Factors that did not have prognostic significance: age of the patient, duration of the hypertension, frequency and severity of headaches and dizziness.—*P.W.M.*

* * *

Inferior Vena Cava Ligation

Late Sequelae of Inferior Vena Cava Ligation. By Patrick C. Shea and L. Robertson, Surg., Gyn. and Obs., 93, 153-158, Aug., 1951.

This study is based upon 37 patients in whom ligation of the inferior vena cava had been performed between 1943 and 1950. Twenty-five of these were suitable for evaluation, records being incomplete on the remainder. Only one patient is entirely free of adverse results. Sequelae usually follow one or two patterns: 1. A small group which develops arteriospastic changes leading in some instances to reflex dystrophies, dermatoses and ulcera-

It's Convenient to Buy Kanox

THERAPEUTIC OXYGEN AND ANESTHETIC GASES



Oxygen Therapy
Regulators and Equipment
Repair Service for
Regulators, Flowmeters
and Humidifiers

Nitrous Oxide
Ethylene
Carbon Dioxide
Helium
Oxygen
Cyclopropane

KANSAS OXYGEN, Inc.

Phone 6392 HUTCHINSON, KANSAS Box 551



Woodcroft Hospital--Pueblo, Colorado

A private hospital for the scientific treatment of neuro-psychiatric disorders, including alcoholism and drug addiction. Beautiful landscaping and home-like surroundings afford a restful atmosphere. Accommodations vary from single rooms with or without bath to rooms en suite, allowing for segregation of guests.

Detailed information furnished on request.

Karl J. Waggener, M.D.

tion; 2. The larger group develops edema which also may eventuate in ulceration.

The authors believe that the ligation, per se, is responsible for most of these changes and do not agree with the theory that sequelae are due to persistence or recurrence of the disease process in the vessels themselves. In some instances, patients with extensive vascular disease of the lower extremities had lesser sequelae.

It is concluded that vena cava ligation should be employed only for those persons who have experienced multiple infarctions after other methods of therapy have failed.—*T.P.B.*

* * *

Acute Nephritis in Schoolboys

Outbreak of Acute Nephritis in Adolescent Schoolboys. By C. Henry Kempe et al, Ped., 8:3, 393-405, Sept., 1951.

The occurrence of acute nephritis in groups of associated persons has been noted in a variety of different circumstances. Among soldiers it is called trench or war nephritis. It may occur in congested tenement districts and among families where several children develop nephritis simultaneously or in rapid succession. The authors report an outbreak of acute nephritis which occurred among adolescent boys who were students at a private day school.

Four boys in one class had clinically typical acute glomerular nephritis.

Seventeen other members of this and one other class were found to have hematuria with or without associated albuminuria. The total incidence of hematuria among the 73 students in these two classes was 29 per cent. Fifteen of the 21 boys with hematuria still had abnormally elevated Addis counts approximately seven weeks after the initial examination.

Cultures of the nasopharynx were made from 85 students. Hemolytic streptococci were detected in 11 (13 per cent) of the boys including three with hematuria. The results of attempts to identify the streptococci by serologic technics indicated that at least five immunologically different varieties were represented.

These cases suggest that it would probably be good medical practice to check urines on possible associated groups in order to pick up mild cases of nephritis which might be overlooked and continue in a chronic nephritis.—*D.R.D.*

Recommend Discarding Heroin

To protect public health and safety an international pharmacologists' group has recommended that diacetylmorphine (heroin) no longer be used for medical purposes, and should be replaced in all countries with other, less dangerous drugs.

The World Health Organization's expert group on narcotics which meets regularly to advise on problems connected with drug addiction, also examined the addictive properties of some 15 new synthetic substances, several of which are already on the market. The substances examined belong to the pethidine, methadone and morphinan types and are potent analgesics. Thirteen of these drugs should be under international control, the experts recommended.

The recommendation on heroin was taken after the group learned that, on the World Health Organization's request, 50 countries have already discontinued or are willing to discontinue the medical use of heroin.

Governmental authorities have been greatly concerned for several years by excessive increase in heroin consumption. Large quantities are finding their way into illegal channels. Until recently, however, there was widespread reluctance to suppress medical use of the drug because of its qualities as a pain killer and cough suppressive. Experience has shown that it can now be replaced by other morphine derivatives or by new synthetic substances.

The problem of chronic abuse of sleep-producing drugs was also studied. Several countries are producing these drugs in increasing quantities, often exceeding the amount needed for therapeutic purposes. It is difficult to differentiate between the various barbiturates with respect to the intensity of addiction liability, and the experts therefore believed that international control was premature.

Of all babies born in the United States in 1949, 86.7 per cent were born in hospitals. In 1935 the figure was only 36.5 per cent.

A difference of only 10 calories per kilogram of body weight can mean success or failure of the growth of healthy children eating a good mixed diet. This was revealed by a careful study of the food intake, metabolism, and growth of 10 healthy children, four to nine years of age, over a period of 69 months. The investigators found that nitrogen retention was depressed when the caloric intake was insufficient. The appetites of the children could not be relied upon to insure consumption of enough food to allow satisfactory weight gain. The study supports the validity of the daily calorie allowance for children as recommended by the Food and Nutrition Board of the National Research Council.—*Journal of Nutrition, 45:189, Oct., 1951.*

"The practice of medicine is so divided among them that each physician is a healer of one disease and no more."—Quotation attributed to Herodotus, the Greek historian, about 1500 B.C.

AMERICAN BOARD EXAMINATIONS

Anesthesiology. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15, Conn. Various locations, July 18.

Dermatology and Syphilology. Sec., Dr. George M. Lewis, 66 East 66th St., New York 21. Written, Chicago, March 1952. Oral, Chicago, May, 1952.

Internal Medicine. Sec., Dr. William A. Werrell, 1 West Main Street, Madison 3. Written, various centers and overseas, Oct. 20; closing date for applications, May 1. Oral, Cleveland, Apr. 17-19; Chicago, June 5-7; San Francisco, in fall.

Obstetrics and Gynecology. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6. Oral, Chicago, June 7-13, 1952.

Ophthalmology. Sec. Dr. Ewin B. Dunphy, 56 Ivie Road, Cape Cortage, Maine. Oral, Oct. 6-10, Chicago. Practical, Philadelphia, May 29-June 3; Chicago, Oct. 6-10; New York City, June 6-10.

Otolaryngology. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City. Oral, Chicago, Oct. 6-10.

Pathology. Sec., Dr. Robert A. Moore, 1402 S. Grand Blvd., St. Louis.

Pediatrics. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa. Oral, Washington, D. C., May 3-5; San Francisco, late June; Chicago and Boston, in fall.

Physical Medicine and Rehabilitation. Sec., Dr. Robert L. Bennett, 30 N. Michigan Ave., Chicago. Parts I and II, Chicago, June 8-9.

Preventive Medicine and Public Health. Sec. Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore. Written, Apr. 18, Berkeley, Calif., Minneapolis, New Orleans, Baltimore.

Psychiatry and Neurology. Sec., Dr. David A. Boyd, Jr., 102-110 Second Ave., S.W., Rochester, Minn. New York City, Dec. 15-16; closing date for applications, Sept. 15.

Radiology. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

Surgery. Sec., Dr. J. Stewart Rodman, 225 South 15th St., Philadelphia. Written, various centers, March, 1952, Oct., 1952.

Urology. Sec., Dr. Harry Culver, 30 Westwood Road, Minneapolis 16. Chicago, Feb. 9-13, 1952.

Deformity Appliances of Quality

Orthopedic and Surgical Appliances
Artificial Limbs

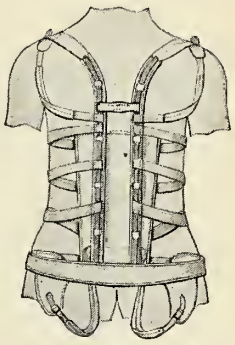
Trusses

Abdominal Supports

Elastic Hosiery

Foot Supports

Surgical Corsets



Taylor Back Brace

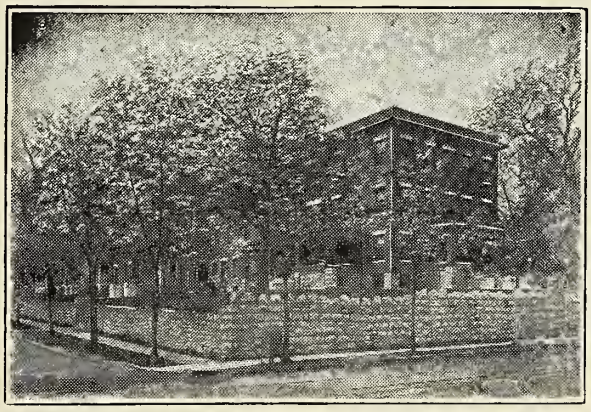
Made to Order
In Our Own Factory

P. W. HANICKE MFG. CO.
1009 McGee St. Victor 4750
KANSAS CITY, MO.

THE MAJOR CLINIC ASSOCIATION

3100 EUCLID AVENUE KANSAS CITY, MISSOURI

A Well Equipped Institution for the Nervous and Mental Diseases and Alcohol Drug and Tobacco Addictions



Beautiful Location Large, Well Shaded Grounds Spacious Porches, All Modern Methods for Restoring Patients to a Normal Condition

Elderly People Accepted — Special Rates

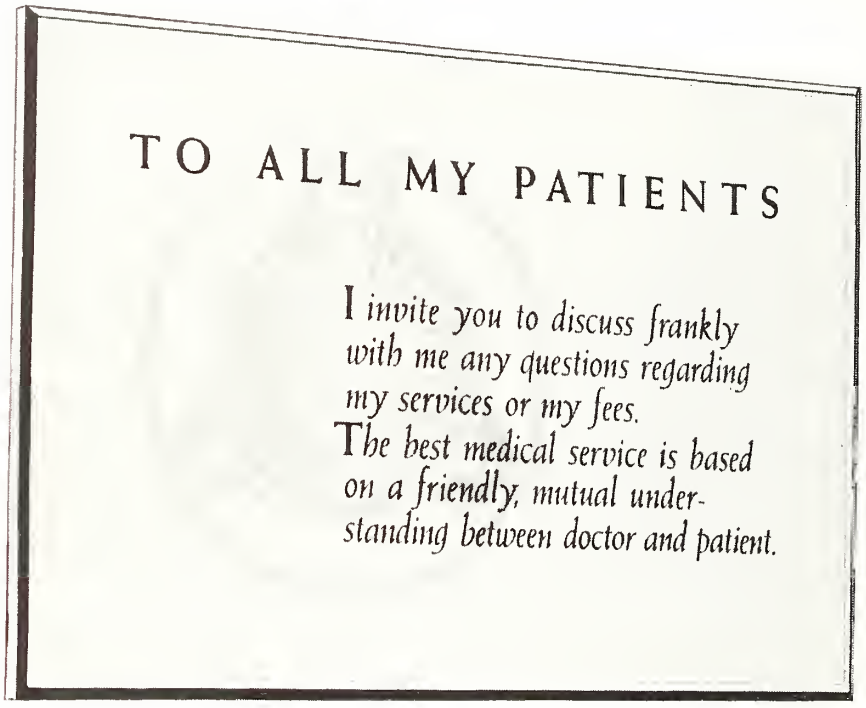
HERMON S. MAJOR, M.D.
Medical Director

HERMON S. MAJOR, JR.
Business Manager

announcing

A NEW PUBLIC RELATIONS AID

. . . to boost your PR rating



NEW OFFICE PLAQUE

- ✓ dark brown lettering on buff
- ✓ harmonizes with any office decor
- ✓ measures 11½ by 7¾ inches
- ✓ for desk or wall
- ✓ laminated plastic finish

As you know, a physician's best public relations is carried on right in his own office. Here the physician gets acquainted with his patients . . . gives them a chance to talk over problems . . . builds a feeling of mutual understanding between patient and doctor.

Your American Medical Association has designed an attractive new office plaque to be displayed prominently on an office desk or wall. This is a graphic invitation to patients to talk over professional services and fees. Patients like to ask questions, but often are hesitant to do so. This plaque will open the door to better relations with your patients. Order one today.

PRICE
$1
POSTPAID

Order Department
AMERICAN MEDICAL ASSOCIATION
535 North Dearborn Street
Chicago 10, Illinois

Cook County Graduate School of Medicine

ANNOUNCES CONTINUOUS COURSES

SURGERY—Intensive Course in Surgical Technic, Two Weeks, starting March 3, March 17, March 31.
Surgical Technic, Surgical Anatomy & Clinical Surgery, Four Weeks, starting March 3, June 2.
Surgical Anatomy & Clinical Surgery, Two Weeks, starting March 17, June 16.
Surgery of Colon & Rectum, One Week, starting March 3, April 7.
Personal Course in General Surgery, Two Weeks, starting April 14.
Gallbladder Surgery, Ten Hours, starting April 21.
Basic Principles in General Surgery, Two Weeks, starting March 31.
Breast & Thyroid Surgery, One Week, starting June 23.
Esophageal Surgery, One Week, starting June 23.
Thoracic Surgery, One Week, starting June 2.
Fractures & Traumatic Surgery, Two Weeks, starting June 16.
GYNECOLOGY—Intensive Course, Two Weeks, starting March 17, April 21.
Vaginal Approach to Pelvic Surgery, One Week, starting March 31, May 5.
OBSTETRICS—Intensive Course, Two Weeks, starting March 31, June 2.
PEDIATRICS—Intensive Course, Two Weeks, starting April 7.
Informal Clinical Course, every two weeks.
Cerebral Palsy, Two Weeks, starting July 7.
MEDICINE — Intensive General Course, Two Weeks, starting May 5.
Electrocardiography & Heart Disease, Two Weeks, starting March 17.
Gastroenterology, Two Weeks, starting May 19.
Hematology, One Week, starting June 16.
Gastroscopy & Gastroenterology, One Week Advanced Course, starting June 23.
UROLOGY — Intensive Course, Two Weeks, starting April 28.
Ten Day Practical Course in Cystoscopy starting March 17, March 31, April 14.
DERMATOLOGY—Intensive Course, Two Weeks, starting May 5.

TEACHING FACULTY—ATTENDING STAFF OF COOK COUNTY HOSPITAL

Address: Registrar, 707 South Wood St., Chicago 12, Ill.

Medical and Surgical Supplies for Doctors of Medicine and Hospitals.

Munns Medical Supply Co.

512 Kansas Ave.
Topeka, Kansas



THE BROWN SCHOOL

Four distinct units. Tiny Tots through the Teens. Ranch for older boys. Special attention given to educational and emotional difficulties. Speech, Music, Arts and Crafts. A staff of 12 teachers. Full time Psychologist. Under the daily supervision of a Certified Psychiatrist. Registered Nurses. Private swimming pool, fireproof building. View book. Approved by State Division of Special Education.

BERT P. BROWN, DIRECTOR
PAUL L. WHITE, M.D., F.A.P.A.,
MEDICAL DIRECTOR
P. O. Box 4008, Austin, Texas

THE MEDICAL PROTECTIVE COMPANY
FORT WAYNE, INDIANA

PROFESSIONAL PROTECTION EXCLUSIVELY SINCE 1899

specialized service assures *"know-how"*

TOPEKA Office:
J. E. McCurdy, Rep.,
1035 Randolph Avenue,
Telephone 2-3027

Rapid strides have been and are being made in the development of emergency medical call systems, the Council on Medical Service of the A.M.A. reported recently. Approximately 80 per cent of the country's large medical societies have such plans, 364 having been in operation at the end of 1951. Counties with few residents and few physicians may effectively rely on the normal physician-patient relationships in emergencies.

Rx Zemmer

PHARMACEUTICALS

A complete line of laboratory controlled ethical pharmaceuticals. Chemists to the Medical Profession since 1903. KA-3-52

THE ZEMMER COMPANY, Pittsburgh 13, Pennsylvania

AMERICA'S AUTHENTIC HEALTH MAGAZINE

today's health

AMERICAN MEDICAL ASSOCIATION



BUILDS FAITH IN YOU AND YOUR WORK

IN YOUR WAITING ROOM

3 YEARS $6.50 2 YEARS $5.00

1 YEAR $3.00

THE UNIVERSITY OF KANSAS SCHOOL OF MEDICINE

Announces Postgraduate Courses In

OPHTHALMOLOGY AND OTOLARYNGOLOGY
March 17, 18, 19, 20 & 21, 1952

Guest Instructors:

ALSTON CALLAHAN, M.D., Professor of Ophthalmology and Chairman of Department, University of Alabama Medical College, Birmingham.

LOUIS H. CLERF, M.D., Professor of Laryngology and Broncho-Esophagology, Jefferson Medical College, Philadelphia.

FRANCIS E. LE JEUNE, M.D., Professor of Otolaryngology and Head of Department, Tulane University of Louisiana School of Medicine, New Orleans.

ALFRED E. MAUMENEE, M.D., Professor of Ophthalmology and Chairman of Department, Stanford University School of Medicine, San Francisco.

VICTOR H. MOORMAN, M.D., Otolaryngologist, Grace and St. Elizabeth's Hospitals, Hutchinson, Kans.

WINFRED L. POST, M.D., Otolaryngologist, Freeman Hospital, Joplin, Mo.

HAROLD G. SCHEIE, M.D., Associate Professor of Ophthalmology, University of Pennsylvania & Hospital, Philadelphia.

HAROLD F. SCHUKNECHT, M.D., Assistant Professor of Otolaryngology, University of Chicago Medical School, Chicago.

ROBERT B. WILSON, M.D., Otolaryngologist, Kansas City, Kans.

ANESTHESIOLOGY
April 14, 15 & 16, 1952

Guest Instructors:

R. M. S. BARRETT, M.D., Anesthesiologist, St. Louis.

WESLEY BOURNE, M.D., Professor Emeritus of Anesthesiology, McGill University, Montreal, Canada.

RALPH T. KNIGHT, M.D., Clinical Professor of Anesthesiology, University of Minnesota Medical School, Minneapolis.

LUCIEN E. MORRIS, M.D., Associate Professor of Anesthesiology, University of Iowa College of Medicine, Iowa City.

A. E. OSTERBERG, Ph.D., Department of Medicine, Abbott Laboratories, North Chicago, Ill.

THOMAS H. SELDON, M.D., Associate Professor of Anesthesiology, Mayo Foundation Graduate School of Medicine, University of Minnesota; Director, Division of Anesthesiology, Mayo Clinic, Rochester.

ROBERT W. VIRTUE, Ph.D., Assistant Professor of Anesthesiology, University of Colorado School of Medicine, Denver.

GERIATRICS
March 24, 25 & 26, 1952

Guest Instructors:

LEONARD J. GOLDWATER, M.D., Sc.D., Professor of Industrial Hygiene, Columbia University College of Physicians and Surgeons, New York City.

JULIUS JENSEN, M.D., Pd.D., Associate Professor of Clinical Medicine, Washington University School of Medicine, St. Louis.

WILLIAM K. ISHMAEL, M.D., Assistant Professor of Medicine, University of Oklahoma School of Medicine, Oklahoma City.

THOMAS H. McGAVACK, M.D., Professor of Clinical Medicine, New York Medical College, New York City.

ROBERT M. PERLMAN, M.D., Institute of Endocrinology and Gerontology, San Francisco.

MALFORD W. THEWLIS, M.D., The Thewlis Clinic, Wakefield, R. I.

Subjects to be Discussed:

Degenerative Arthritis.

Geriatrics—General Considerations.

Degenerative Diseases of Bone in the Aging.

Old Syphilis.

The Cholesterol Problem.

The Trend of Endocrine Gland Changes in Aging Individuals.

Common Accidents Occurring in Elderly Diabetics in Relation to Coma and Surgery.

Rehabilitation of Markedly Debilitated Aged and Aging Subjects.

Occupational Potentialities of the Cardiac Patient.

Hormones and the Aging Heart.

A Study of 175 "Cardiacs" Without Heart Disease.

CLASSIFIED ADVERTISEMENTS

WANTED—Doctor, young or old, general practice. Write the Journal 1-52.

WANTED—Young Kansas Draft exempt active general practitioner who has had sufficient training to do all minor and emergency surgery to permanently locate. City and surrounding industrial population 1,000—closest opposition 30 miles. This location is open as a result of the young physician recently being called to service who grossed $12,000 per year. A hospital district surrounding this city has been permanently organized and a new modern eight-bed hospital will be constructed here in the near future. Write the Journal 2-52.

FOR SALE—Will sacrifice. Entire office equipment. Town of 8,000 in southern Kansas location. Two good hospitals. Reason for selling, retiring. Write the Journal 3-52.

Merck & Mallinckrodt ® Reagents
KLINE TEST ANTIGEN (LAMOTTE)
PYREX LABORATORY GLASS WARE
PIPETTES AND BURETTES
PRECISION EQUIPMENT
HARTMAN-LEDDON SPECIALTIES
LABORATORY SUPPLIES & EQUIPMENT
KANSAS OWNED
Southwest Scientific Corporation
122 S. St. Francis Wichita 2, Kansas

TROWBRIDGE TRAINING SCHOOL
Established 1917
For unusual children. Medical and psychiatric supervision. Experienced teachers. Individual special training. Home atmosphere. Enrollment limited. Approved and registered by the Council of Medical Education and Hospitals of the A.M.A. Pamphlet.
E. H. TROWBRIDGE, SR., M.D.
1905 BRYANT BUILDING KANSAS CITY 6, MO.

Nationally advertised Surgical Supplies and Equipment have been placed at Topeka, Joplin, Kansas City and St. Joseph for your convenience by—
GOETZE NIEMER CO.
Management by Dr. W. F. Goetze, a member of the American Medical Association, assures intelligent servicing of your orders.

THE LATTIMORE-FINK LABORATORIES
Topeka El Dorado
Kansas

J. L. Lattimore, A.B., M.D., Pathologist
A. A. Fink, A.B., M.D., Pathologist
H. C. Ebendorf, M.T. Serologist
A. C. Keith, B.S., Chemist
L. W. Hull, A.B., Bacteriologist
Walter Norris, A.B., Chemist

Anatomical and Clinical Pathology

Containers Furnished Upon Request

ACCIDENT • HOSPITAL • SICKNESS
INSURANCE
FOR PHYSICIANS, SURGEONS, DENTISTS EXCLUSIVELY

ALL PREMIUMS COME FROM — PHYSICIANS SURGEONS DENTISTS — ALL CLAIMS GO TO

$5,000 accidental death	$8.00
$25.00 weekly indemnity, accident and sickness	Quarterly
$10,000.00 accidental death	$16.00
$50.00 weekly indemnity, accident and sickness	Quarterly
$15,000.00 accidental death	$24.00
$75.00 weekly indemnity, accident and sickness	Quarterly
$20,000.00 accidental death	$32.00
$100.00 weekly indemnity, accident and sickness	Quarterly

COST HAS NEVER EXCEEDED AMOUNTS SHOWN.
ALSO HOSPITAL POLICIES FOR MEMBERS' WIVES AND CHILDREN AT SMALL ADDITIONAL COST

85c out of each $1.00 gross income used for members' benefits

$4,000,000.00 Invested Assets — $18,300,000.00 Paid for Claims
$200,000.00 deposited with State of Nebraska for protection of our members
Disability need not be incurred io line of duty—beoefits from the beginning day of disability
PHYSICIANS CASUALTY ASSOCIATION
PHYSICIANS HEALTH ASSOCIATION
50 Years under the same management
400 FIRST NATIONAL BANK BLDG., OMAHA 2, NEBRASKA

Therapy for Vascular Headache to Reverse the Physiologic Disturbance

Headache, a problem encountered in all kinds of medical practice, may occur in association with any of a variety of disorders, some organic, other purely functional.

Among the several types, functional headaches present the greatest problem because of their obscure etiology and recurrent nature.

Among these are:

Migraine (both classical and variant forms)
Tension headache
Psychogenic headache
Histaminic cephalgia

Wolff and his co-workers established that the pain of these headches is due to disturbance of the tonus of cranial blood vessels — hence the term *vascular headaches.*

The craniovascular changes associated with the several phases of the typical migraine attack are:

Vasoconstriction — to which the visual prodromata are attributable. It is possible to abort the attack during this phase in all but a few cases. (See treatment below.)

Vasodilatation — as the vessels lose their tone, exaggerated pulsations set in, resulting in the throbbing pain which characterizes vascular headache. Treatment for the attack is still effective during this phase. (See below.)

Vessel Edema — if the vasodilation continues for too long, vessel walls become edematous; this changes the character of the pain to a steady, intense aching. The attack can now no longer be checked, even with maximum dosage of specific drugs. *Moreover, sustained headache often induces reflex neck muscle tension, a source of residual pain.*

Therapy: 1. Reduce the frequency of attacks — psychotherapy and regulation of living habits to avoid fatigue and nervous tension.

2. Relieve the acute attack — of the numerous drugs which have been tried, ergotamine and its derivative preparations have proved most effective. The newest product is oral tablets of Cafergot®, N. N. R. (ergotamine with caffeine 'Sandoz'). When dosage is adjusted to the needs of the individual, Cafergot will give good relief in 85% of cases. It enables a greater number of patients to benefit from early administration since the oral route simplifies treatment as compared to parenteral therapy.

The dosage procedure is:

1. Take 2 tablets at first sign of the attack.
2. If attack continues, take one additional tablet every ½ hour until attack is terminated *(max. 6 tabs. per attack).*

Many migraine patients delay taking medication until the attack is at its height. Explicit dosage instructions may be forgotten unless the patient comes to realize their importance. Therefore, to encourage adherence to correct procedure, we have prepared pads outlining detailed dosage instructions. Supplies of these INSTRUCTION SLIPS will gladly be sent upon request.

GENERAL REFERENCES: DeJong, R.: Chicago M. Soc. Bull *54:* 106, 1951. Friedman, A.: Modern Headache Therapy, St. Louis, C. V. Mosby Co., 1951. Wolff, H.: Headache and Other Head Pain, N. Y., Oxford Univ. Press, 1948.

Sandoz Pharmaceuticals
DIVISION OF SANDOZ CHEMICAL WORKS, INC.
68 CHARLTON STREET, NEW YORK 14, N. Y.

Index to Advertisers

Abbott Laboratories XIV
American Meat Institute..... XII
Ayerst, McKenna and Harrison, Ltd..... 153
Brown School 161
Continental Casualty Company..... XVIII
Cook County Graduate School of Medicine..... 161
Duncan Laboratories 151
Florida Citrus Commission..... 155
General Electric Company, X-ray Department. XVII
Goetze Niemer Company..... 163
Hanicke, P. W., Manufacturing Company..... 159
Kansas Oxygen Division..... 157
Lattimore-Fink Laboratories 163
Lederle Laboratories 149
Lilly, Eli, and Company Facing XVIII
Major Clinic 159
Mead Johnson and Company..... Back cover
Medical Protective Company..... 161
Merck and Company, Inc..... V
Munns Medical Supply Company, Inc..... 161
Neurological Hospital Association 164
Parke, Davis and Company, Inc.....
..... Inside front cover and III
Pfizer, Charles, and Company, Inc..... X and XI
Philip Morris and Company..... 147
Physicians Casualty Association..... 163
Ralph Sanitarium XVI
Reynolds, R. J., Tobacco Company..... XIII
Sandoz Pharmaceuticals 164
Schering Corporation XV
Searle, G. D., and Company..... 141
Smith-Dorsey Company Inside back cover
Southwest Scientific Corporation..... 163
Squibb, E. R., and Sons..... VI and VII
Trowbridge Training School 163
University of Kansas Medical Center..... 162
Upjohn Company 143
Winthrop-Stearns, Inc. 145
Woodcroft Hospital 157
Wyeth, Inc. IX
Zemmer Company 162

The Neurological Hospital, 2625 West Paseo, Kansas City, Missouri, a voluntary hospital providing the care and treatment of nervous and mental patients, and associate conditions.

THE JOURNAL
of the
KANSAS MEDICAL SOCIETY

Owned and Published by The Kansas Medical Society

Vol. LIII APRIL, 1952 No. 4

Greetings

The Wyandotte County Medical Society invites you to be present at the 93rd annual meeting of the Kansas Medical Society to be held at Kansas City, Kansas, April 27-May 1, 1952.

This is the first time in many years that the Wyandotte County Medical Society has been host at the annual session. An outstanding scientific program with many new features has been arranged. The scientific and technical exhibits will be unusual at this meeting. A special clinical program will be held at the Medical Center, and I am sure you will be happy with the progress of our Medical School. Arrangements for the golf tournament and skeet shoot, followed by the tournament banquet, have been made for Monday. The annual banquet which is always the feature for Wednesday evening will be held in the ball room of the Town House, Kansas City's new hotel.

The annual meeting of the Woman's Auxiliary to the Kansas Medical Society will be held in Kansas City on the same dates.

The General Practitioners have plans for an interesting program followed by a banquet on Monday, April 28.

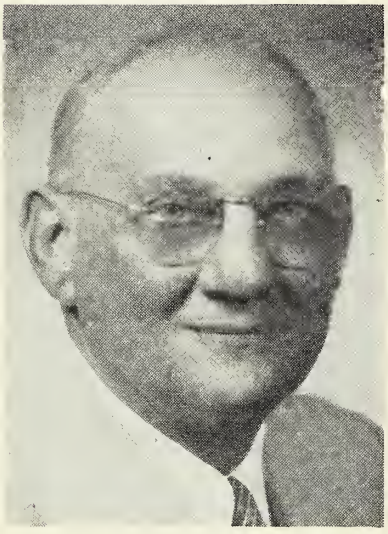
Plan to have your medical assistant present Sunday, April 27, and Monday, April 28, to attend the meeting of the Kansas Medical Assistants' Society.

We are most happy to have this opportunity to be your host, and we assure you your stay in Kansas City will be a pleasant one.

E. J. GROSDIDIER, M.D., *President*

Wyandotte County Medical Society

Guest Speakers



CHARLES ADOLPH BAHN, M.D.

New Orleans, Louisiana

Graduate, University of Texas School of Medicine, 1907; Postgraduate Work, University of Paris, France; Senior Visiting Surgeon, Charity Hospital, New Orleans; Past Professor of Ophthalmology, Tulane and Louisiana State University Medical Schools; Past Vice President, American Academy of Ophthalmology and Otolaryngology; Past Vice-Chairman, EENT Section of American Medical Association; Diplomate, American Board of Ophthalmology.

Specialty: Ophthalmology.



M. EDWARD DAVIS, M.D.

Chicago, Illinois

Graduate, Rush Medical College, 1923; Professor of Obstetrics and Gynecology, School of Medicine, University of Chicago; Member Advisory Commission, Maternal and Child Health Service and Maternal Welfare, Children's Bureau, U. S. Department of Labor; Winner, A.M.A. Gold Medal Award; Diplomate, American Board of Obstetrics and Gynecology; Fellow, American College of Surgeons; Member, Central Association of Obstetricians and Gynecologists, Society for Experimental Biology and Medicine, American Society for the Study of Sterility, American Gynecological Society.

Specialty: Obstetrics and Gynecology.

LEWIS KRAEER FERGUSON, M.D.

Philadelphia, Pennsylvania

Graduate, University of Pennsylvania School of Medicine, 1923; Professor of Surgery, University of Pennsylvania Graduate School of Medicine and Woman's Medical College of Pennsylvania; Diplomate, American Board of Surgery; Fellow, American College of Surgeons; Member, American Surgical Association, American Gastro-Enterological Association, American Society for Experimental Pathology.

Specialty: Surgery.

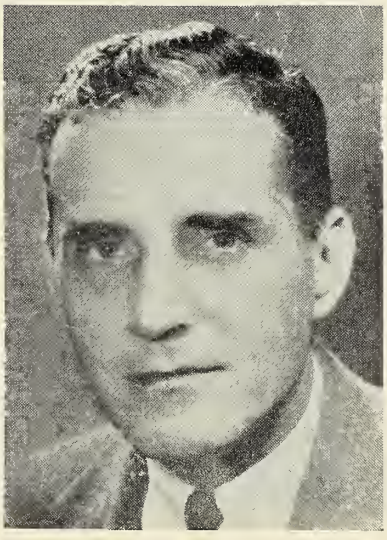


THOMAS PALMER FINDLEY, JR., M.D.

New Orleans, Louisiana

Graduate, Rush Medical College, 1928; Professor of Clinical Medicine, Tulane University of Louisiana School of Medicine; Head of Department of Medicine, Ochsner Clinic, New Orleans, Louisiana; Experimental Work on Physiology of Kidney, University of Pennsylvania, 1932-1935; Diplomate, American Board of Internal Medicine; Fellow, American College of Physicians; Member, Central Society for Clinical Research, American Society for Clinical Investigation.

Specialty: Internal Medicine.



TELEPHONE NUMBER AT THE AUDITORIUM — DREXEL 3975



HAVELOCK FRANK FRASER, M.D.

Lexington, Kentucky

Graduate, Cornell University Medical College, 1932; Assistant Chief, Research Branch, Public Health Service Hospital, Lexington, Kentucky; Assistant Chief, Industrial Hygiene Research Laboratory, National Institute of Health, 1945-1946; Assigned to State Department, in Germany, 1946-1949; Research in Drug Addiction, 1949-1952; Member, American Chemical Society.

Specialty: Drug Addiction.



GEORGE JOSEPH GARCEAU, M.D.

Indianapolis, Indiana

Graduate, Northwestern University Medical School, 1925; Professor of Orthopedic Surgery, Indiana University School of Medicine; Chief of Orthopedic Division, Indiana University Medical Center; Chief Orthopedic Surgeon, Indiana Hospitals; Member of Staff of Methodist Episcopal, St. Francis and St. Vincent's Hospitals; Diplomate, American Board of Orthopaedic Surgery; Fellow, American Academy of Orthopaedic Surgeons, Past President, Clinical Orthopaedic Society.

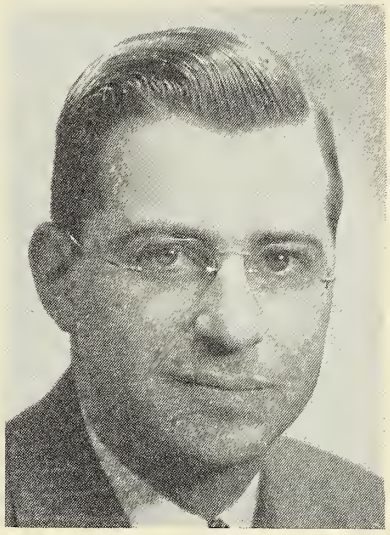
Specialty: Orthopedics.

CLARENCE ALLEN GOOD, M.D.

Rochester, Minnesota

Graduate, Washington University School of Medicine, 1933; M.S. in Radiology, University of Minnesota Medical School, 1938; Consultant, Section on Roentgenology, Mayo Clinic, Rochester, Minnesota; Associate Professor of Radiology, Mayo Foundation, Graduate School, University of Minnesota; Diplomate, American Board of Radiology; Fellow, American College of Radiology; Member, American Roentgen Ray Society, Radiological Society of North America, Inc.

Specialty: Radiology.

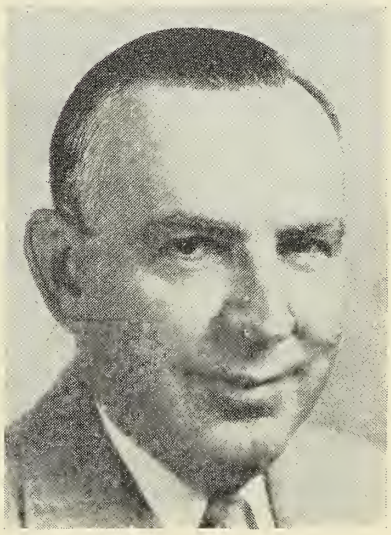


BAYARD TAYLOR HORTON, M.D.

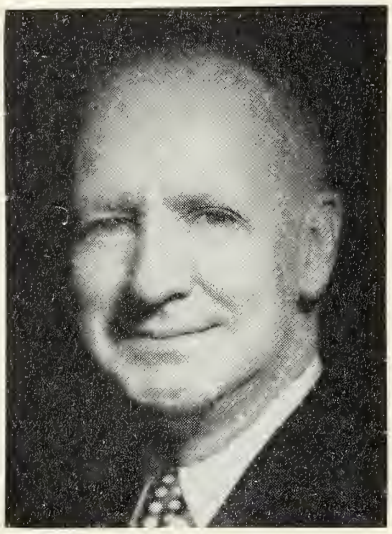
Rochester, Minnesota

Graduate, University of Virginia Department of Medicine, 1922; Associate Professor of Internal Medicine, University of Minnesota Medical School; Consultant in Medicine, Mayo Clinic, Rochester, Minnesota; Winner, John Horsley $1,000 Prize for Research Work on Pyloric Block, 1929; Author of More than 170 Medical Articles, Including Descriptions of Two New Disease Entities, Temporal Arteritis and Histaminic Cephalgia (Horton's Syndrome); Diplomate, American Board of Internal Medicine.

Specialty: Internal Medicine.



TELEPHONE NUMBER AT THE AUDITORIUM — DREXEL 3975

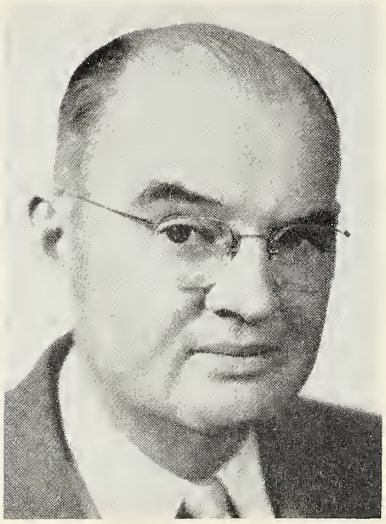


PHILIP JAY HOWARD, M.D.

Detroit, Michigan

Graduate, Harvard Medical School, 1925; Associate Pediatrician, Henry Ford Hospital; Diplomate, American Board of Pediatrics; Member, American Academy of Pediatrics, Pediatric Research Society, Detroit Pediatric Society, Detroit Physiologic Society.

Specialty: Pediatrics.

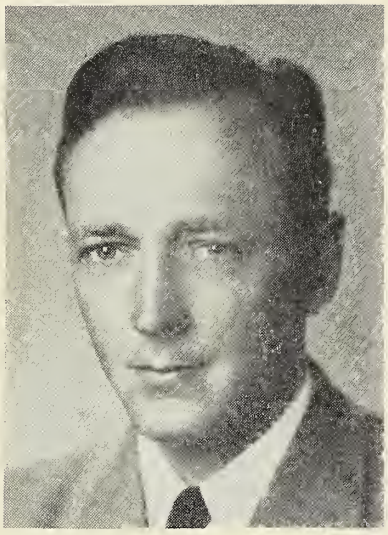


JAMES BERNARD McNAUGHT, M.D.

Denver, Colorado

Graduate, Stanford University School of Medicine, 1931; Professor and Head of Pathology, University of Colorado School of Medicine and Hospitals; Vice President, Board of Trustees, American Board of Pathology; Vice President, International Association of Medical Museums; Councilor, American Association of Pathologists and Bacteriologists; Consultant to Atomic Energy Commission, Division of Biology and Medicine, to the Surgeon General U. S. Army, to the Veterans Administration; Past Governor and Founding Fellow, College of American Pathologists.

Specialty: Pathology.



RAYMOND DONALD PRUITT, M.D.

Rochester, Minnesota

Graduate, University of Kansas School of Medicine, 1939; M.S. in Internal Medicine, University of Minnesota Medical School, 1944; Consultant, Division of Medicine, Mayo Clinic, 1943-1947; Assistant Professor of Medicine, Mayo Foundation Graduate School, University of Minnesota; Diplomate, American Board of Internal Medicine; Member, American Heart Association, Central Society for Clinical Research.

Specialty: Internal Medicine.



SAM EARL ROBERTS, M.D.

Kansas City, Missouri

Graduate, University of Kansas School of Medicine, 1911; Postgraduate Work, Vienna University; Professor of Otorhinolaryngology, University of Kansas School of Medicine; Diplomate, American Board of Otolaryngology; Member, American Academy of Ophthalmology and Otolaryngology, American Laryngological, Rhinological and Otological Society, American Broncho-Esophagological Association.

Specialty: Otorhinolaryngology.

TELEPHONE NUMBER AT THE AUDITORIUM — DREXEL 3975

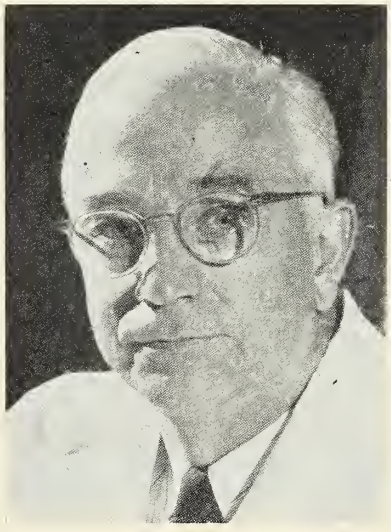


ALFRED ROSCOE SUGG, M.D.

Ada, Oklahoma

Graduate, University of Arkansas School of Medicine, 1924; Internship, St. Vincent's Hospital, Little Rock, Arkansas; Visiting Surgeon, Valley View Hospital, Ada, Oklahoma; Diplomate, American Board of Urology; Member, American Urological Association, South Central Section.

Specialty: Urology.



OWEN HARDING WANGENSTEEN, M.D.

Minneapolis, Minnesota

Graduate, University of Minnesota Medical School, 1922; Chief of Department and Professor of Surgery, University of Minnesota Medical School; Diplomate, American Board of Surgery; Fellow, American College of Surgeons; Member, American Academy of Thoracic Surgery, American Society for Experimental Pathology, American Surgical Association, Society for Experimental Biology and Medicine, Western Surgical Association.

Specialty: Surgery.

Schedule of Events

93rd ANNUAL SESSION

Kansas City, Kansas, April 27, 28, 29, 30, May 1, 1952

Sunday, April 27

12:30 Annual Meeting, Board of Directors, Kansas Physicians' Service
Town House Hotel

Monday Morning, April 28

10:00 Practice Rounds, Kansas Medical Golfing Association
Milburn Country Club, on Highway 69, One-Half Mile South of the US 50, 10 and 69 Cloverleaf in Johnson County

10:00 Practice Shooting, Kansas Medical Skeet and Trapshooting Association
Bobwhite Gun Club, in Platte County, Missouri, West of Junction of US 45 and 69 Highways on Way to Parkville, Missouri

10:00 Business Session, Kansas Chapter, American Academy of General Practice. See Page 181

Monday Afternoon, April 28

1:00 Competitive Golfing, Kansas Medical Golfing Association
Milburn Country Club, on Highway 69, One-Half Mile South of the US 50, 10 and 69 Cloverleaf in Johnson County

1:30 Competitive Shooting, Kansas Medical Skeet and Trapshooting Association
Bobwhite Gun Club, in Platte County, Missouri, West of Junction of US 45 and 69 Highways on Way to Parkville, Missouri

1:30 Scientific Session, Kansas Chapter, American Academy of General Practice. See Page 181

Monday Evening, April 28

6:00 Cocktails
Milburn Country Club, on Highway 69, One-Half Mile South of the US 50, 10 and 69 Cloverleaf in Johnson County

6:30 Cocktails, Dinner, Program, Kansas Chapter, American Academy of General Practice. See Page 181

7:00 Tournament Banquet
Milburn Country Club, on Highway 69, One-Half Mile South of the US 50, 10 and 69 Cloverleaf in Johnson County
Awarding of Golf and Trapshooting Prizes
Brief Business Meeting
Entertainment

TELEPHONE NUMBER AT THE AUDITORIUM — DREXEL 3975

Tuesday Morning, April 29

8:00 Blue Shield Relations Committee Breakfast

Town House Hotel, Room D

8:30 Registration

Memorial Auditorium, East Entrance

Open 8:30 A.M. to 5:00 P.M.

Opening of Scientific and Technical Exhibits

FIRST GENERAL SESSION

Memorial Auditorium, Third Floor

Presiding: Lucius E. Eckles, M.D., Topeka, Kansas

9:20 Address of Welcome

Edward J. Grosdidier, M.D., Kansas City, Kansas

President, Wyandotte County Medical Society

9:30 The Management of Peripheral Vascular Disease

Thomas Palmer Findley, Jr., M.D., New Orleans, Louisiana

The limitations of conservative and surgical therapy will be considered in this presentation.

10:00 The Management of Abnormal Bleeding at the Menopause

M. Edward Davis, M.D., Chicago, Illinois

This troublesome but very important condition will be discussed from the standpoint of etiology, diagnosis, prognosis and control.

10:30 Intermission to Visit Exhibits

SECOND GENERAL SESSION

Presiding: Lloyd W. Hatton, M.D., Salina, Kansas

10:45 Fractures of the Ankle

George Joseph Garceau, M.D., Indianapolis, Indiana

Fractures about the ankle joint require special consideration because of the peculiar anatomy involved. The correct diagnosis must be made in order to plan the proper treatment. Each type of fracture differs from the other in method of production and reduction. Awareness of an unsatisfactory reduction at the onset followed by open reduction will prevent extensive surgery later. Roentgenological interpretation of what constitutes a satisfactory reduction is considered. Methods and length of immobilization are discussed.

11:15 Palliation in Colonic Cancer

Lewis Kraeer Ferguson, M.D., Philadelphia, Pennsylvania

The paper will point out that surgical resection of the cancer offers the most effective type of palliation. This point will be discussed with a presentation of case histories and follow-up results. The role of surgical excision and of radium and x-ray in the treatment of inoperable and recurrent cancer will be discussed.

Tuesday Morning, April 29—(Continued)

12:00 Round Table Luncheon

Town House Hotel, Ball Room

Presiding: Donald N. Medearis, M.D., Kansas City, Kansas

Question and Answer Period

Panel of Guest Speakers: Thomas Palmer Findley, Jr., M.D., New Orleans, Louisiana
George Joseph Garceau, M.D., Indianapolis, Indiana
Clarence Allen Good, M.D., Rochester, Minnesota
Bayard Taylor Horton, M.D., Rochester, Minnesota
Philip Jay Howard, M.D., Detroit, Michigan
Sam Earl Roberts, M.D., Kansas City, Missouri

Tuesday Afternoon, April 29

THIRD GENERAL SESSION

Memorial Auditorium, Third Floor

Presiding: Arnold G. Isaac, M.D., Newton, Kansas

2:00 Histaminic Cephalgia, Diagnosis and Treatment

Bayard Taylor Horton, M.D., Rochester, Minnesota

This presentation will be a discussion of the disease entity I have called histaminic cephalgia, described in Dorland's Medical Dictionary as Horton's Syndrome. This is the same headache that has been referred to as "suicide headache."

2:30 Trichinosis

James Bernard McNaught, M.D., Denver, Colorado

This will be a general discussion of the trichinosis problem including the life cycle of Trichinella spiralis, the incidence of trichinosis in the United States, the clinical diagnosis, therapy, and prevention, with special attention given to the laboratory diagnosis.

3:00 Response of Erythroblastosis to Adrenocorticotropin and Cortisone

Philip Jay Howard, M.D., Detroit, Michigan

Experimental work has been reported to suggest that in certain laboratory animals, if ACTH be given during pregnancy, a pattern of congenital deformities appears more often than in controls. Cleft palate is one of these deformities. Certain Rh sensitive pregnant women have been shown to lose their positive Rh titre or have it reduced in a few weeks by ACTH. It therefore becomes important to follow carefully at every opportunity the course of infants whose mothers have been thus treated during pregnancy with ACTH to determine the presence of any disease or weakness. Such a group of eight infants has been seen, and show seven normal infants and one mentally deficient infant.

3:30 Intermission to Visit Exhibits

Tuesday Afternoon, April 29—(Continued)

FOURTH GENERAL SESSION

Presiding: Conrad M. Barnes, M.D., Seneca, Kansas

3:45 The Significance of a Solitary Mass in the Lung

Clarence Allen Good, M.D., Rochester, Minnesota

At some time or other, most physicians are faced with the problem of what to do about a patient with a solitary mass in the lung. It is generally agreed that, in a significant number of cases, such a mass may be malignant. The roentgenologic features which exclude the possibility of malignancy will be discussed. Other roentgenologic and clinical data will be presented which aid in the rational management of such a problem.

4:15 Practical Problems in the Treatment and Management of the Prostate

Alfred Roscoe Sugg, M.D., Ada, Oklahoma

This presentation will be a resume of everyday practical problems, an appraisal of customary therapeutic measures, and some suggestions for their improvement.

Tuesday Evening, April 29

6:00 Kansas Radiological Society Dinner and Meeting

Fairfax Airport

6:30 House of Delegates Dinner and Meeting

Town House Hotel, Junior Ball Room

6:30 Kansas Obstetrical and Gynecological Society Dinner and Meeting

Town House Hotel, Room C

Wednesday Morning, April 30

8:00 Kansas Society of Pathologists Breakfast and Meeting

Town House Hotel, Room A

8:30 Registration

Memorial Auditorium, East Entrance

Open 8:30 A.M. to 5:00 P.M.

Opening of Scientific and Technical Exhibits

FIFTH GENERAL SESSION

Memorial Auditorium, Third Floor

Presiding: Donald A. Kendall, M.D., Great Bend

Wednesday Morning, April 30—(Continued)

9:30 Signs Which Aid in the Earlier Detection of Cancer of the Lung

Clarence Allen Good, M.D., Rochester, Minnesota

Bronchogenic carcinoma is on the increase. At present the only hope for cure is surgical removal. To be effective, excision of the growth must take place before there has been spread beyond the lung. This requires detection of the lesion at the earliest possible time. Proper use of the roentgen ray is of the utmost importance in this campaign for earlier detection. Once the presence of a suspicious lesion is recognized, the diagnosis may be made by a variety of roentgenologic, bronchoscopic, pathologic and surgical methods.

10:00 Pathology of the Breast

James Bernard McNaught, M.D., Denver, Colorado

This will be a discussion and lantern slide presentation of various pathologic entities such as inflammation, hypertrophy, benign and malignant tumors, and other conditions causing lumps in the breast. Their prognosis and generally accepted treatment will be summarized.

10:30 Intermission to Visit Exhibits

SIXTH GENERAL SESSION

Presiding: George D. Marshall, M.D., Colby, Kansas

10:45 Nephroptosis: Differential Diagnostic Procedure

Alfred Roscoe Sugg, M.D., Ada, Oklahoma

The discussion of differential diagnostic procedures will include instructions on the time to operate and a description of the surgery to be performed.

11:15 Premature Infants in Later Life at Ages Eight to Twenty Years

Philip Jay Howard, M.D., Detroit, Michigan

A group of 26 premature infants of birth weights of four pounds or less has been followed to determine their physical state, vision, intelligence and personality. The results of the study bring to light some interesting variations as compared to the infant born at or near term, and they will be reported in this presentation.

12:00 Round Table Luncheon

Town House Hotel, Ball Room

Presiding: Harold V. Holter, M.D., Kansas City, Kansas

Question and Answer Period

Panel of Guest Speakers: Charles Adolph Bahn, M.D., New Orleans, Louisiana
M. Edward Davis, M.D., Chicago, Illinois
Lewis Kraeer Ferguson, M.D., Philadelphia, Pennsylvania
Havelock Frank Fraser, M.D., Lexington, Kentucky
James Bernard McNaught, M.D., Denver, Colorado
Raymond Donald Pruitt, M.D., Rochester, Minnesota
Alfred Roscoe Sugg, M.D., Ada, Oklahoma

12:15 Kansas Society of Anesthesiologists Luncheon and Meeting

Terrace Club, 9th Floor, New Brotherhood Building

Wednesday Afternoon, April 30

SEVENTH GENERAL SESSION

Memorial Auditorium, Third Floor

Presiding: Woodrow M. Campion, M.D., Liberal, Kansas

2:00 Role of Surgery in Treatment of Peptic Ulcer

Lewis Kraeer Ferguson, M.D., Philadelphia, Pennsylvania

Peptic ulcer becomes a surgical disease when it is complicated by perforation, hemorrhage, obstruction of the pylorus, and intractability. Gastric ulcer has different surgical implications because of the possibility of gastric cancer. The surgical treatment of ulcer disease will be presented, along with a review of more than 200 ulcer patients who have been treated by surgery.

2:30 Recent Advances in the Diagnosis of Heart Disease

Raymond Donald Pruitt, M.D., Rochester, Minnesota

As physicians with mortal limitations, our job is to recognize real advances in the diagnosis of heart disease and to avoid frittering away our energies in an endless chase of "the latest thing." This review will consist of an appraisal of diagnostic measures proposed in recent years. Comment will be made on developments in the fields of electrocardiography, angiocardiography and ventricular catheterization.

3:15 Intermission to Visit Exhibits

EIGHTH GENERAL SESSION

Presiding: Edward F. Steichen, M.D., Lenora, Kansas

3:30 Colles' Fractures and Complications

George Joseph Garceau, M.D., Indianapolis, Indiana

Colles' fracture involves the wrist joint. Such fractures, even when effectively treated, often result in deformities of variable degree. The points of effective treatment are stressed. The complications are considered and methods of avoiding them are presented.

3:45 Clinical Manifestations of Drug Addiction

Havelock Frank Fraser, M.D., Lexington, Kentucky

This presentation will include a motion picture showing manifestations of intoxication with various drugs commonly used by addicts.

4:15 The Modern Management of the Placental Stage and Postpartum Hemorrhage

M. Edward Davis, M.D., Chicago, Illinois

The placental stage and postpartum hemorrhage can be vital with emergencies arising suddenly. Prevention of postpartum hemorrhage is of first importance. Management of this condition may save the patient's life.

Wednesday Evening, April 30

7:30 Annual Banquet

Town House Hotel, Ball Room

Presiding: Clarence H. Benage, M.D., Pittsburg, Kansas

Program and Dancing

Thursday Morning, May 1

8:30 Registration

Memorial Auditorium, East Entrance

Open 8:30 A.M. to Noon

Opening of Scientific and Technical Exhibits

NINTH GENERAL SESSION

Memorial Auditorium, Third Floor

Presiding: Gordon Claypool, M.D., Howard, Kansas

9:30 The Care of the Cardiac Patient Undergoing Surgical Treatment

Raymond Donald Pruitt, M.D., Rochester, Minnesota

Review will be made of the common problems confronting the clinician during the preoperative and postoperative care of the cardiac patient undergoing surgical treatment. Points of emphasis as concerns progress and course of treatment will be given on cardiac reserve, myocardial infarction and nutrition, acute pulmonary edema, anticoagulant therapy and postoperative cardiac arrhythmia.

10:00 Treatment of Addiction

Havelock Frank Fraser, M.D., Lexington, Kentucky

Therapy will be outlined for addicts to opium drugs, synthetic analgesics, barbiturates and alcohol. Procedures followed at the federal hospital at Lexington, Kentucky, will be explained, and a film on a new drug for treatment of narcotic poisoning will be shown.

10:30 Intermission to Visit Exhibits

TENTH GENERAL SESSION

Presiding: Herbert L. Songer, M.D., Lincoln, Kansas

10:45 Extensions of Surgery for Cancer

Owen Harding Wangensteen, M.D., Minneapolis, Minnesota

Important strides have been made in the surgical management of cancer of the alimentary tract in the past decade. Studies now in progress at this clinic suggest that reoperation (the "second look" procedure) upon the lymph node positive group of cancer cases, particularly in cancers of the colon, has something to offer. Cancer of the alimentary tract is curable when the disease is still confined to the viscus from which it arose.

12:15 House of Delegates Luncheon

Town House Hotel, Room C

TELEPHONE NUMBER AT THE AUDITORIUM — DREXEL 3975

Thursday Afternoon, May 1

Symposium on Chronic Rheumatic Heart Disease
Presented by Faculty and Staff of the University of Kansas School of Medicine
1:30 to 4:00

UNIVERSITY OF KANSAS MEDICAL CENTER
39th and Rainbow Boulevard
Out-Patient Building, Third Floor Auditorium

I. Clinical Conference

Presiding: Mahlon H. Delp, M.D., Department of Medicine

A. Recognition and selection of patients for mitral surgery

B. Patient demonstration to clarify features in selection of such candidates
 1. Patients not suitable
 2. Patients ideal
 3. Poor but eligible or necessary candidates. EKG, chest plate, tape recordings of heart sounds

II. Demonstration of pathologic anatomy and physiology, including chamber pressure differences, during mitral valvulotomy (by color television) as well as physiological evaluation using data from previously treated patients.

E. Grey Dimond, M.D., and Kurt Reissmann, M.D., Department of Medicine
Paul W. Schafer, M.D., and Staff, Department of Surgery

Intermission

III. Panel Discussion with Questions from the Audience

Subacute bacterial endocarditis, acute rheumatic fever, ACTH and cortisone, surgical risk, normal span without surgery, anticoagulants, what is desirable interval of wait between onset of rheumatic lesion and surgery

Paul W. Schafer, M.D., Department of Surgery

Mahlon H. Delp, M.D., E. Grey Dimond, M.D., and Kurt Reissmann, M.D., Department of Medicine

W. Clarke Wescoe, M.D., Department of Pharmacology

Demonstration of Pathological Specimens

Demonstration of X-rays (Shadow Box)

Tour of All or Part of Medical Center with Staff Physicians as Guides

Committee Chairmen

General Chairman—Lee H. Leger, M.D.
Scientific Program—William H. Algie, M.D.
EENT Scientific Program—Clifford J. Mullen, M.D.
Commercial Exhibits—Peter E. Hiebert, M.D.
Scientific Exhibits—Hughes W. Day, M.D.
Arrangements and Banquet—C. Omer West, M.D.
Publicity—Oscar W. Davidson, M.D.
Entertainment—Michael J. Ryan, M.D.
Reception—Glenn R. Peters, M.D.
Auxiliary—Leland N. Speer, M.D.

Annual Assembly Kansas Chapter, American Academy of General Practice

Business Session and Scientific Program

Monday Morning, April 28

10:00 Business Session and Election of Officers
Town House Hotel, Room D
Presiding: George L. Thorpe, M.D., Wichita, Kansas

11:00 Brunch for the Ladies, Book Review
Town House Hotel, Rooms A and B

Monday Afternoon, April 28

Town House Hotel, Junior Ball Room
Presiding: George L. Thorpe, M.D., Wichita, Kansas

1:30 Venesection as a Therapeutic Procedure
Thomas Palmer Findley, Jr., M.D., New Orleans, Louisiana

2:00 Headache Mechanisms
Bayard Taylor Horton, M.D., Rochester, Minnesota

2:30 Intermission—Wyeth Exhibitor

2:45 The Placebo and the Physician
Thomas Palmer Findley, Jr., M.D., New Orleans, Louisiana

3:15 Migraine and Tension Headaches
Bayard Taylor Horton, M.D., Rochester, Minnesota

3:45 Panel Discussion on Thrombo Embolic Diseases
Maxwell Berry, M.D., Kansas City, Missouri
Thomas Palmer Findley, Jr., M.D., New Orleans, Louisiana
Ferd C. Helwig, M.D., Kansas City, Kansas
Bayard Taylor Horton, M.D., Rochester, Minnesota

Monday Evening, April 28

Town House Hotel, Ball Room

6:30 Cocktail Hour

7:30 Dinner and Program
Speaker: Mr. Bill Vaughan, Kansas City, Missouri

9:30 Dancing to George TiDonna

Eye, Ear, Nose and Throat Section

Chairman: Clifford J. Mullen, M.D., Kansas City, Kansas
Vice Chairman: Maurice J. Ryan, M.D., Kansas City, Kansas

Tuesday Morning, April 29

8:30 Registration
Memorial Auditorium, East Entrance
Open 8:30 A.M. to 5:00 P.M.
Opening of Scientific and Technical Exhibits

FIRST SESSION

Memorial Auditorium, Third Floor
Presiding: David T. Loy, M.D., Great Bend, Kansas

9:30 Laryngoscopy
Sam Earl Roberts, M.D., Kansas City, Missouri
This presentation will be a demonstration of instrument and methods used and difficulties encountered in teaching the technique to interns, residents, etc., with an explanation of the reason for failure. Fifteen minutes will be allowed for questions and answers.

10:30 Intermission to Visit Exhibits

10:45 What Conditions Do Ophthalmologists Treat Most Frequently?
Charles Adolph Bahn, M.D., New Orleans, Louisiana
Ophthalmologists who are practical experts in the recognition and treatment of a few basic ophthalmic conditions which usually co-exist will solve the major problems of the majority of their patients. Fifteen minutes will be allowed for questions and answers.

12:00 Round Table Luncheon
Town House Hotel, Ball Room
Guest Speaker on E.E.N.T.: Sam Earl Roberts, M.D., Kansas City, Missouri

Tuesday Afternoon, April 29

SECOND SESSION

Presiding: Karl W. Stock, M.D., Topeka, Kansas

2:15 Painful Head and Neck Syndrome
Sam Earl Roberts, M.D., Kansas City, Missouri
It is my observation that approximately 90 per cent of the severe recurring chronic headaches are of vascular origin, either from vasodilatation or vasospasm. The latter has not been emphasized nearly enough. Dysfunctions in the autonomic nervous system, with the hypothalamus as the control station, form the chief etiological background. Since the patient consults us for these disturbances, it behooves us to prepare ourselves to advise them intelligently and to treat them efficiently. Fifteen minutes will be allowed for questions and answers.

3:15 Intermission to Visit Exhibits

3:45 Ophthalmic Economics
Charles Adolph Bahn, M.D., New Orleans, Louisiana
The economic life of an average ophthalmologist involves: 1. An initial investment of money to acquire proficiency; 2. Office installation; 3. Office maintenance. The net and gross earnings of an average professional life will be discussed. Fifteen minutes will be allowed for questions and answers.

Tuesday Evening, April 29

6:00 Cocktails and Dinner

New Brotherhood Building, Terrace Club

This dinner is in conjunction with the regular monthly dinner meeting of the Kansas City E.E.N.T. Society. Attendance is limited to physicians in E.E.N.T. practice. Reservations, at $4.00, must be made by Saturday, April 26, to Clifford J. Mullen, M.D., 1409 Minnesota Avenue, Kansas City, Kansas—Telephone Finley 8392. Check may be forwarded or ticket may be paid for at Registration Desk, Memorial Auditorium.

Wednesday Morning, April 30

8:30 Registration

Memorial Auditorium, East Entrance

Open 8:30 A.M. to 5:00 P.M.

Opening of Scientific and Technical Exhibits

THIRD SESSION

Memorial Auditorium, Third Floor

Presiding: Kenneth J. Gleason, M.D., Independence, Kansas

9:30 Fundamentals of Ophthalmic Diagnosis

Charles Adolph Bahn, M.D., New Orleans, Louisiana

A basic, simple, elastic, but complete plan will be presented to facilitate ophthalmic diagnosis. The clinical, pathological and etiologic factors and tests in any patient are coordinated at three levels: the screening, the practical detail, and the technical detail levels. Fifteen minutes will be allowed for questions and answers.

10:30 Intermission to Visit Exhibits

10:45 Bronchoscopy in the Newborn

Norton L. Francis, M.D., Wichita, Kansas

Fifteen minutes will be allowed for questions and answers.

12:00 Round Table Luncheon

Town House Hotel, Ball Room

Guest Speaker on E.E.N.T.: Charles Adolph Bahn, M.D., New Orleans, Louisiana

Wednesday Afternoon, April 30

FOURTH SESSION

Presiding: Carroll W. Armstrong, M.D., Salina, Kansas

1:45 Catalysts in Ophthalmology

Charles Adolph Bahn, M.D., New Orleans, Louisiana

Practically every ophthalmic patient has a catalystic imbalance, which includes vitamins, hormones and enzymes. Together they form a coordinated and correlated mechanism which will be explained and illustrated. Fifteen minutes will be allowed for questions and answers.

2:45 E.E.N.T. Section Business Session

Presiding: Will D. Pitman, M.D., Pratt, Kansas

3:30 Intermission to Visit Exhibits

Woman's Auxiliary to the Kansas Medical Society

Annual Meeting, April 28-30, 1952

Kansas City, Kansas

Monday, April 28

1:00-3:00 Registration, Town House Hotel

Tuesday, April 29

9:30-3:00 Registration, Town House Hotel

10:00 Pre-Convention Board Meeting, Town House Hotel, Parlor A

1:00 Past State Presidents' Luncheon, Terrace Club, 8th and State Avenue

3:00 Tea, Home of Dr. and Mrs. M. J. Ryan, 115 Lombardy Drive

7:00 Dinner, Milburn Country Club, 7501 West 69th Street
Honoring Mrs. M. A. Brawley and State Officers

Wednesday, April 30

9:00-12:00 Registration, Town House Hotel

9:30 General Session, Town House Hotel, State Suite on Second Floor

1:00 Luncheon, Town House Hotel, Junior Ball Room

Honoring Mrs. H. F. Wahlquist, National President, and New Officers. Special Table for Councilors and Members-at-Large

3:30 Post Convention Board Meeting, Town House Hotel, State Suite on Second Floor

7:30 Annual Kansas Medical Society Banquet, Town House Hotel, Ball Room

Kansas Medical Assistants' Society

Annual Meeting, April 27 and 28, 1952

Kansas City, Kansas

Sunday, April 27

8:00 Registration, Town House Hotel Lobby
Coffee, Town House Hotel, Parlors A and B
10:00 Tour of Kansas City
First Session, Town House Hotel, Rooms C and D
1:00 Address of Welcome—E. J. Grosdidier, M.D., Kansas City, President, Wyandotte County Medical Society
1:15 Response—C. H. Benage, M.D., Pittsburg, President, Kansas Medical Society
1:25 What You Should Know About Cataracts—C. A. Crockett, M.D., Kansas City
2:00 The Drudgery of Work—Rev. James F. Hanley, S.J., Professor of Economics, Rockhurst College, Kansas City, Missouri
2:45 Problems of the Board of Medical Registration and Examination —O. W. Davidson, M.D., Kansas City, Secretary of Board
3:00 Some Great Books in Medicine—Ralph H. Major, M.D., Kansas City
4:00 Business Meeting—Presiding, Miss Maxine Williams, Kansas City, President, Kansas Medical Assistants' Society
6:00 Buffet Dinner, Town House Hotel, Ball Room
The Milan Mahale Trio—Entertainment
8:00 Movie, "Sojourn in Europe"—Herbert J. Rinkel, M.D., Kansas City, Missouri

Monday, April 28

8:00 Registration, Town House Hotel Lobby
Second Session, Town House Hotel, Junior Ball Room
9:00 Test Your Medical Laboratory IQ—Marjorie Sirridge, M.D., Kansas City
9:30 How to Win Patients and Influence Doctors—A. R. Sugg, M.D., Ada, Oklahoma, President, Oklahoma State Medical Association
10:15 Uniform Display, Kays Dress Shop, Kansas City
10:30 Our Heritage—Fred A. Richmond, D.D.S., Kansas City, Editor, Journal of the Kansas State Dental Association
11:15 Your Role in the Blue Cross-Blue Shield Program—Mr. Proctor Redd, Topeka, Director of Professional and Public Relations, Blue Cross-Blue Shield
11:30 Medical Practice in Pakistan—Mahmuda Ismail, M.D., Parkistan, Special Student at the University of Kansas Medical Center
1:00 Luncheon, Town House Hotel, Ball Room
Famous Women—Miss Mae McGuire, Kansas City, Correspondent, Kansas City Kansan
2:30 Installation of Officers
3:00 Viewing of Scientific Exhibits, Memorial Auditorium

PRESIDENT'S PAGE

Dear Doctor:

Time is rapidly drawing the curtains on another year for the Kansas Medical Society. As the year comes to a conclusion so does the privilege that has been mine for twelve months. I will be forever more forbidden to use this page again, so I want the membership to know that I am grateful for the unselfish support given me in behalf of the Society. Gratitude is due the officers, the Council, the committee chairmen and their co-workers, the Auxiliary, the medical assistants and the executive secretary and his entire office staff.

I trust time will and can recognize our sincere efforts!

As I step aside, it becomes a pleasure to pass the Key of Leadership to Dr. Warren Bernstorf because I am aware of his courage and convictions.

For the past year it has been a singular honor to serve you and for the future, I am

Always sincerely yours,



President



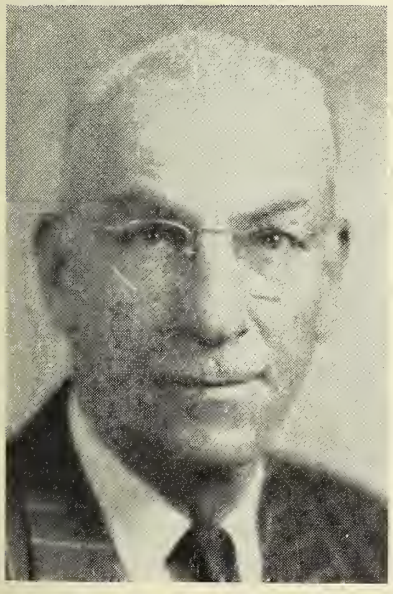
Clarence H. Benage, M.D., President

In April 1951 the Journal introduced the new president, C. H. Benage, M.D., to this Society, predicting an unusual year because of his "uncanny ability to resolve differences of opinion." That was a year ago, a year filled with its full share of activity, conflict and worry, but the prediction has proved truer than its authors even dreamed was possible.

In this brief space no review can do justice to the ability, the integrity and devotion your president has given this Society during the year just finished. No president has ever served with greater determination to improve the condition of medicine in Kansas, none has had a broader, more unselfish vision of his duties or his opportunities, and few have entered a year when the dilemma of conflicting ideals stood out more sharply. His achievements are well known and embrace many fields. Permit just one to be reported here.

Dr. Benage united six allied professions with whom relations had been severely strained into a harmonious, cooperative unity. His inspiration and his integrity brought into being the Kansas Interprofessional Advisory Council. His guidance assured its success. Under this program medicine can, at long last, prepare to coordinate its efforts with its major professional allies for the benefit of the people of Kansas. This heroic achievement, although only one of many that might be named, will long preserve the memory of this year and will permanently mark the occasion as historic in the experience of this Society.

President-Elect



Warren F. Bernstorf, M.D., President-Elect

Looking ahead with your president-elect, Warren F. Bernstorf, M.D., opens vistas of high hopes for the future. He knows today the course he plans to take, the projects he wishes to sponsor, the goals he will strive to achieve. Let that record speak for itself one year from now, and today view Dr. Bernstorf, the man. This will provide assurance for the days to come.

As a physician and surgeon his ability is highly regarded both by the many persons who consult him in their care and among his large circle of professional friends. His contributions to organized medicine extend throughout and beyond the borders of this state. He served as councilor for six years with such sound judgment that his opinions have had a profound bearing upon the activities of this Society. During a period of two years he guided the destinies of Kansas Blue Shield with singular success as its president and now assumes leadership in the highest position of honor the medical profession of this state has to bestow.

Dr. Bernstorf is a champion of liberty, devoted to the cause of free enterprise. He has taken time to be a good citizen, to participate in civic affairs, to practice his beliefs. His contributions are dramatic in many fields and it is this demonstrated, this practical idealism that will guide the Society during the months to come. It will be a busy, an inspired, a memorable year.

Councilor Reports

FIRST DISTRICT

To The House of Delegates:

The First District has been fairly quiet for the past year. Most of the counties are holding regular monthly meetings with a certain percentage of scientific presentations.

There is still a shortage of general practitioners in some of the smaller towns. Hiawatha has its new hospital in operation, and Onaga has received approval of its hospital.

One district meeting was held with the members of the Auxiliary, and we were fortunate in having both the president of the Society and the president of the Auxiliary present.

The big problem confronting most of the societies is the handling of the indigent or welfare problem. One county has solved the problem by giving medical services to those who can't afford to pay, and charging those who can afford. Perhaps this will be a satisfactory arrangement.

Respectfully submitted,
W. L. ANDERSON, M.D., *Councilor*

SECOND DISTRICT

To The House of Delegates:

The writer, having served his first year as councilor, has enjoyed this experience but feels that he is not yet well enough acquainted with problems that might exist in his district to give a complete report. It appears at the moment that no major outstanding problems exist except for those mentioned below.

One county society, consisting of five members, has temporarily withdrawn from membership in the Kansas Medical Society. Your councilor and the council itself have made several efforts to bring about a reconciliation, but the existing difficulty is one of long standing in which basic opinions are in conflict. Your councilor is in agreement with council action in this matter to the effect that this small county society should be reinstated upon its own request but that further action on behalf of the council itself or the medical society toward the reconciliation of this group is probably not necessary.

The other major problem is one which affects a larger portion of the society, namely the indigent care program. Several county societies in District Two, namely Douglas, Leavenworth and Wyandotte, have had unusual problems in this regard. These counties have cooperated with the state society survey and are still hopeful that an ultimate adjustment can be effected, but at the time of this writing we are advised that correction, if any, of the peculiar difficulties in which these counties find themselves will probably be postponed for another 15 months. While this is not a pleasant prospect, and each of the component societies involved is taking action aimed toward temporary adjustments, the prospects do not appear bright at present.

The councilor of the Second District wishes to extend his personal invitation, on behalf of the Wyandotte County Society, to the entire Kansas Medical Society to attend the 93rd annual session. This first meeting to be held in Kansas City in many years, it is hoped, will be a profitable occasion for each physician in Kansas. The local committee has taken considerable pains to provide an outstanding scientific program, together with all the usual accompanying events.

Respectfully submitted,
H. P. JONES, M.D., *Councilor*

THIRD DISTRICT

To the House of Delegates:

During the past year the members of the Society in this district have made no complaint or evidenced any dissatisfaction to their councilor relative to the officers of the Kansas Medical Society. I trust that this is an indication of satisfaction as to the conduct of the affairs of the Kansas Medical Society by its officers, and not a lack of interest by members of the Society in this district.

An increasing number of guest speakers to the medical societies of this district and larger attendance at the extension courses of the medical school speak well for the doctors of this district in their desire to practice good medicine.

This district, like all others, is subjected to a depletion of nursing personnel. We wish to commend our president, Dr. Benage, on his recognition and effort to correct this unfortunate condition. With increasing population and increasing employment because of new industries in this district, our bed capacity is saturated and our doctors overworked.

Respectfully submitted,
JAMES G. HUGHBANKS, M.D., *Councilor*

FOURTH DISTRICT

To The House of Delegates:

The situation of medicine in the Fourth District is good. Hospital facilities have not been increased

markedly, but within the next year there should be at least 250 beds added to our present hospitals.

The floods of July, 1951, caused damage of immense proportions in the Fourth District. The doctors rose to the increased demand for service and met all the emergency calls made upon them.

In spite of the call for medical personnel by the armed forces, there has been a definite increase in the number of practicing physicians in the Fourth District.

Respectfully submitted,
F. C. TAGGART, M.D., *Councilor*

FIFTH DISTRICT

To the House of Delegates:

The interest of members in my district is very much as before, but certainly there is no lag in interest in our Society—if anything, an evidence of an increase.

The attendance at the county society meetings in my district is better, as is also attendance at the Mid-West District meetings.

We appreciate very much the lectures given by the K. U. Medical Extension Department, and whether we are young or old graduates the benefits are often of inestimable value and should be taken advantage of by even the busiest of our profession.

The state meeting at Kansas City, Kansas, will, I believe, be well attended by representatives of this district.

Respectfully submitted,
L. J. BEYER, M.D., *Councilor*

SIXTH DISTRICT

To the House of Delegates:

There has been a marked influx in population throughout the Sixth District the past few years, far greater than the increase in available hospital beds. Many hospitals are building, planning new additions, or plagued with chronic indecision. This has created a rather acute shortage during the past year.

The tuberculosis sanatorium in Wichita has been closed. This was, and always has been, supported by Sedgwick County tax money. The Sixth District is in need of hospital, or sanatorium, beds for the tubercular patient. The Kansas Medical Society and its legislative committees must be awakened to the fact that it is far better to have numerous small state sanatoria located strategically near medical centers, than one large state sanatorium purporting to care for the tuberculous of the entire state.

Next year is a legislative year. Let us solve many of our health problems by supporting men of integrity, men with medical foresight enough to solve any health problems before they become a reality.

Respectfully submitted,
J. V. VAN CLEVE, M.D., *Councilor*

SEVENTH DISTRICT

To the House of Delegates:

The situation has changed somewhat in the Seventh District in the past year. Formerly all facilities were overloaded with patients; at present, in most instances, our problem consists of a shortage of nurses and in some cases, of course, laboratory assistants. With this in mind one cannot help but wonder what the new regulations in the nurses training program might do to an already critical situation.

Medical activities over the past year have been somewhat limited on the whole, although in some instances, justly so. The Riley County flood situation greatly interfered with their routine and for a time resulted in greatly overloading medical facilities. At present they are actively engaged in the completion of their new hospital which will be a great asset to their community.

Over much of this district, your councilor is impressed with the apparent lack of interest in medical activities. This is partly due to the isolation, as well as the size, of many county societies. It is felt that some program to consolidate several of these small organizations into one or two large groups might materially improve this situation. It is hoped that sometime during the next year some such program can be worked out.

Respectfully submitted,
S. A. ANDERSON, M.D., *Councilor*

EIGHTH DISTRICT

To the House of Delegates:

The medical situation in the Eighth District is essentially normal. The flood damages of last summer are largely repaired, though the effects will likely be noticeable for some time yet. A new hospital has been completed at Lincoln, and additions to the two hospitals in Salina are nearing completion.

Several new doctors have located in the district in the last year.

Respectfully submitted,
A. E. RUEB, M.D., *Councilor*

NINTH DISTRICT

To the House of Delegates:

The Ninth Councilor District, made up of 10 counties in northwest Kansas, comprises the Northwest Kansas Medical Society.

Medical meetings have been held during the year for the election of officers and the transaction of business. Programs that were held in former years have been mostly replaced by the educational circuit course sponsored by the medical school and the Kansas Medical Society. Each year these programs seem so well chosen that it is difficult to anticipate improvement. Yet each succeeding year seems better than the past. The presentation of clinic cases has been enthusiastically received. The teachers who present this circuit course have a weary, hard job. We owe them the greatest of gratitude.

Considerable rearrangement of physicians has occurred in this district during the past year. Dr. M. E. Robinson of Goodland left in August to establish a practice at Klammath Falls, Oregon. Dr. Glenn Martin, who moved to Goodland in September from Paola, is now located at Wakeeney. Dr. R. W. McClure, who located at Hoxie during the fall, has accepted a fellowship in internal medicine at the Mayo Clinic. Dr. E. E. Johnson has established a practice at Norton, limiting his work to surgery. Dr. Ward Benkleman, a graduate of the University of Kansas, is now associated with Dr. Haddon Peck of St. Francis.

Again the professional coronaries have survived without an occlusion. There were no deaths.

While there is perhaps an over-abundance of hospital beds, the seven hospitals in the Ninth District show every evidence of survival. Except for two communities where physicians have left without being replaced, medical care is excellent.

Respectfully submitted,

M. J. RENNER, M.D., *Councilor*

TENTH DISTRICT

To the House of Delegates:

The Tenth Councilor District has been fortunate in having a well distributed medical personnel. In addition the people of this district have been kind to us in providing hospitals in the past year.

A 45-bed addition to Hadley Hospital at Hays was opened in June, 1951. A new hospital at Smith Center was opened in June, 1951. A new hospital at Wakeeney was opened early in 1951. Extensive remodeling of St. Anthony's Hospital, Hays, has been under way for this entire year. A new hospital at Phillipsburg is now under construction.

We have three men now in military service, Dr. J. E. Seitz of Wakeeney, Dr. Rex Belisle of Plainville, and Dr. F. J. Bice of Wakeeney. Two replacements have been obtained for Wakeeney and another replacement is being obtained for Plainville.

The county medical society meetings have been well attended, and we have had interesting programs. Practically all of our members have endorsed the national educational campaign of the American Medical Association and have paid American Medical Association dues.

In all, the year has seen great progress in providing medical care to all of the people in facilities near their own communities.

Respectfully submitted,

L. W. REYNOLDS, M.D., *Councilor*

ELEVENTH DISTRICT

To the House of Delegates:

During the year several Council reports have been made by the councilor to the active medical societies of the Eleventh District. The new hospitals in this district have been operating at capacity. There are several new young doctors in this district and they have met with good favor in their communities. Several chiropractors and osteopaths have gone to look for greener fields.

Respectfully submitted,

C. V. BLACK, M.D., *Councilor*

TWELFTH DISTRICT

To the House of Delegates:

District Twelve of the Kansas Medical Society is comprised of 17 counties located in the southwest corner of the state with the towns widely separated. As in previous years the condition of the medical societies in this district is rather dormant.

With the help of the Kansas Medical Society, the University of Kansas Medical School and the interest of the citizens of various communities, 17 new doctors located in the towns of southwest Kansas. This brings the total number of doctors in this district to 64.

Since most of the doctors attend the monthly meetings of the Kansas University Postgraduate Extension Course in Dodge City, the meetings of the Society are held each month at the same time as the staff meetings at the various hospitals, in order to conserve time and gasoline. These meetings are well attended.

Until such time as a space ship or some such distance eradicator is available, the status of the medical societies in District Twelve will probably remain as it now is—interested but more or less inactive.

Respectfully submitted,

R. G. KLEIN, M.D., *Councilor*

Committee Reports

ALLIED GROUPS

P. B. Leffler, Pittsburg, Chr.; J. J. Basham, Eureka; T. P. Butcher, Emporia; A. R. Chambers, Iola; A. C. Dingus, Yates Center; L. B. Gloyne, Kansas City; G. E. Kassebaum, El Dorado; G. R. Maser, Overland Park; G. C. Meek, Arkansas City; R. R. Snook, McLouth; W. L. Speer, Osawatomie; F. E. Wrightman, Sabetha.

To the House of Delegates:

The Committee on Allied Groups held one meeting, at which time several problems were discussed. Among them was the shortage of nurses and the fact that numerous schools of nursing in Kansas are being closed. The committee approved a motion that this problem should be studied by the Inter-Professional Advisory Council and that the medical auxiliary be invited into action in this regard.

The committee further recommended that all component societies within the state arrange at least one meeting annually to which members of allied professions would be invited. This appears especially significant with reference to dentists and pharmacists. In areas where such meetings have been held the results have been significant, and the committee urgently requests that projects of this type be considered by all societies.

Another item of discussion was the consideration of courtesy staff privileges for doctors of dental surgery in local hospitals. In some areas they have been included as full staff members and have made valuable contributions. County societies are invited to consider this possibility.

Respectfully submitted,

P. B. LEFFLER, M.D., *Chairman*

ANESTHESIOLOGY

H. J. Brown, Winfield, Chr.; L. L. Bresette, Kansas City; H. H. Hyndman, Wichita; P. H. Lorhan, Kansas City; R. S. McKee, Leavenworth; C. D. McKeown, Wichita; R. T. Parmley, Wichita; H. F. Spencer, Emporia; E. M. Sutton, Salina; F. C. Taggart, Topeka.

To the House of Delegates:

During the past year, and in particular at a meeting of your Committee on Anesthesiology held in Salina, February 14, 1952, it has become apparent that the members are in accord in their feeling that the function of the committee is in a state of change. This is, of course, as it should be since, as the president of the Kansas Medical Society said at the beginning of the year, one of the prime objectives of the committee is to foster the growth of the Kansas Society of Anesthesiologists. This society is growing steadily and has, in fact, taken over many of the works formerly those of the Committee on Anesthesiology. This again is as it should be. The anesthesiology society is, as was the committee, interested most in promoting the best for the greatest number in the Kansas Medical Society.

We have temporarily tabled all action as regards furtherance of our wish to activate investigation into anesthesia deaths in Kansas. At the same time we still hope to be able to get some of the information by including questions pertinent to anesthesia deaths on the death certificate of the Kansas State Board of Health.

We continue to inform the profession to the best of our ability through talks at county medical society meetings, at medical meetings in general, particularly hospital meetings. We lack only the opportunity. The program is operative.

We have not been able to follow the president's suggestion that we prepare articles and speeches for the press, radio, and for lay gatherings. We feel that this should indeed be done. Let us hope that next year will see a beginning of this work.

Your committee has been active in its interest in politics, both local and national. We persevere in this important activity.

Your committee continues, with the Kansas Society of Anesthesiologists and with the Kansas Medical Center, to foster postgraduate education in anesthesiology. A refresher course is a regular feature at the medical center. One will be given April 14, 15 and 16, 1952. Dr. Paul Lorhan has had six people during the past year who have spent varying periods of time at the medical center studying anesthesiology. This was, of course, over and above his regular resident program.

Your committee has been influential in keeping up the interest of the part time anesthesiologist in our state of Kansas. We feel very strongly that a man need not be a 100 per cent specialist in anesthesiology to be a competent practitioner of the specialty. To him we will continue to devote as much of our time and teaching as possible. This is a program, incidentally, in which your committee was two years ahead of the national thinking back in 1945 and 1946.

In conclusion, it is the hope of your committee that, because of the natural usurpation of some of the committee functions by the Kansas Society of Anesthesiologists, the president of the Kansas Medical Society will not see fit to abandon naming a Committee on Anesthesiology. We feel that the committee will find its natural level in the next few years, and are sure that it will be a level of mutual advantage to both the Kansas Society of Anesthesiologists and the Kansas Medical Society.

Respectfully submitted,

HARWIN J. BROWN, M.D., *Chairman*

AUXILIARY

J. A. Billingsley, Kansas City, Chr.; M. A. Brawley, Frankfort; E. C. Bryan, Erie; J. E. Henshall, Osborne; F. A. Moorhead, Neodesha; C. O. West, Kansas City.

To the House of Delegates:

The Woman's Auxiliary to the Kansas Medical Society has had another very successful year. Though the yearly reports are not completed until convention time, the present membership is 914, with several units still unreported. Bourbon County was organized.

We are glad to report that this year the Auxiliary has 11 members-at-large from the Southwest Kansas District. Most of these memberships represent counties not before connected with the Auxiliary. Let us try to complete District 12's organization.

The Auxiliary challenge, according to Mrs. M. A. Brawley, Auxiliary president, is the great difference in membership of the Auxiliary and the Kansas Medical Society.

All doctors of the Kansas Medical Society can be of assistance in the goals of the Auxiliary. Urge your wife to become a working member of her county organization, and if your county is not organized, to send in her member-at-large dues to the state Auxiliary organization.

It is only the informed wife who can be of value in her contacts with her lay organizations. Much public relations work is not done from the platform, but over the tea cups.

The national Auxiliary coordinates its program with the American Medical Association program in public relations, health education, and nurse recruitment work.

Won't you help to make the 1952-53 Auxiliary goal, complete Auxiliary membership in the state, possible?

Respectfully submitted,
JOHN A. BILLINGSLEY, M.D., *Chairman*

BLUE SHIELD FEE SCHEDULE

A. A. Fink, Topeka, Chr., Pathology; C. M. Barnes, Seneca, General Practice; P. D. Brown, Salina, Obstetrics and Gynecology; N. L. Francis, Wichita, E.N.T.; G. F. Gsell, Wichita, Eye; P. E. Hiebert, Kansas City, Radiology; A. G. Isaac, Newton, Urology; Dwight Lawson, Topeka, Blue Shield; W. O. Martin, Topeka, Anesthesiology; C. R. Rombold, Wichita, Orthopedics; L. L. Saylor, Topeka, Surgery; D. C. Wakeman, Topeka, Internal Medicine.

To the House of Delegates:

In view of the fact that there has been an overall change recently in the Blue Shield fee schedule in the state, it was felt that no further changes should be made until sufficient time elapses to give the current schedule a complete trial. However, the committee has undertaken a study of three problems.

The first concerns physicians practicing in rural areas, some of whom have expressed the opinion that the requirement that members be hospitalized for certain benefits produces an inequality adverse to the rural physician. A sub-committee has initiated a survey to study the extent of this problem.

The second problem concerns patients for whom difficult and arduous care is required. The study currently being made will determine whether additional payments may be allowed in these exceptional situations.

The committee has made a recommendation to the Blue Shield Board of Directors on the third problem, concerning payments to physicians treating the same patient. The committee's advice was

STUDY SHOWING RELATIONSHIP OF PAYMENTS IN VARIOUS BLUE SHIELD PLANS

February 21, 1952

	Kansas	K. C., Mo.	Iowa	Madison, Wisc.	Minn.	Pa.	Maine	Mich.	Mass.
Income Limits									
Single	$2,000	$1,800	$2,000	$2,000	$2,000	$2,000	$2,001	$3,750	$2,000
Two Person		2,400				3,000			2,500
Family	3,000	3,000	3,000	3,600	3,000	4,000	3,001	5,000	3,000
Highest Surgical Payment	$200.00	$150.00	$200.00	$150.00	$150.00	$200.00	$150.00	$150.00	$150.00
Maximum Medical Payment	216.00	111.00	217.00	30.00	65.00	219.00	63.00	491.50	65.00
Payment begins on—	2nd day	4th day	4th day	4th day	1st day	1st day	1st day	1st day	1st day
Medical Payment First Week	24.00	35.00	19.00	12.00	23.00	30.00	21.00	39.50	23.00
Delivery Payment	50.00	60.00	45.00	60.00	50.00	60.00	50.00	40.00	50.00
Appendectomy	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	75.00
Herniotomy	75-125	75-100	100-200	75-100	75-125	100-150	100-125	75-125	75-125
Cholecystectomy	150.00	125.00	135.00	125.00	125.00	150.00	125.00	140.00	125.00
Colon Resection	150.00	150.00	200.00	150.00	150.00	200.00	150.00	150.00	150.00
Tonsillectomy and Adenoidectomy	25.00	35.00	$25 under 12 yrs. $35 over 12 yrs.	$35	$30 under 13 yrs. $35 over 13 yrs.	$30	$25 under 15 yrs. $35 over 15 yrs.	30.00	25.00
Cataract	125.00	75.00	125.00	125.00	100.00	150.00	100.00	100.00	100.00
Panhysterectomy	150.00		135.00	150.00	125.00	150.00	150.00	150.00	125.00
Hysterectomy	125.00	125.00	100.00	125.00	100.00	150.00	100.00	150.00	100.00

that payment be made on a proportional basis, with the physicians themselves suggesting the percentage of payment to each.

As can be seen from the above, it is felt that the necessity exists for continued study of the Blue Shield fee schedule so that equalized payments may be made for all services rendered by practitioners of medicine. The committee believes the fee schedule in effect in Kansas is comparable to those of other states. A chart showing schedules effective in eight other prepayment plans is presented.

Respectfully submitted,
A. A. FINK, M.D., *Chairman*

BLUE SHIELD RELATIONS

L. W. Reynolds, Hays, Chr.; D. A. Bitzer, Washington; L. F. Glaser, Hutchinson; L. G. Glenn, Protection; R. G. Klein, Dodge City; C. H. Miller, Parsons; W. L. Pratt, Leavenworth; L. J. Schaefer, Salina; F. L. Smith, Colby; H. F. Spencer, Emporia; G. G. Whitley, Douglass; E. T. Wulff, Atchison.

To the House of Delegates:

The Blue Shield Relations Committee was organized to improve relationships between Blue Shield and the physicians of Kansas and to serve as a channel of information between Blue Shield and the various councilor districts. We have had one state-wide committee meeting where it was decided to endorse the economy program of Blue Cross and Blue Shield. We did this realizing that any savings produced would enable Blue Cross and Blue Shield to continue present services and to provide additional services without increasing rates.

We have held meetings in each councilor district during the year and explained the economy program; also at these meetings any criticisms of Blue Shield were answered or explained. By the time of the annual meeting at least 1,000 physicians in Kansas will have been reached by these meetings.

The Blue Shield organization would welcome an opportunity to present a program for any county medical society or any hospital staff meeting. By reaching the largest number of physicians, we can best explain any criticisms or objections to Blue Shield, the prepaid health plan originated and operated by the physicians of Kansas.

Respectfully submitted,
L. W. REYNOLDS, M.D., *Chairman*

CHILD WELFARE

D. N. Medearis, Kansas City, Chr.; J. H. Bena, Pittsburg; M. S. Boyden, Lawrence; D. R. Davis, Emporia; T. C. Hurst, Wichita; B. I. Krehbiel, Topeka; G. M. Martin, Topeka; E. G. Padfield, Salina.

To The House of Delegates:

The Committee on Child Welfare has not met during the past year as no matters requiring committee action were brought to the attention of the chairman.

Respectfully submitted,
DONALD N. MEDEARIS, M.D., *Chairman*

CONSERVATION OF EYESIGHT

B. J. Ashley, Topeka, Chr.; E. E. Anderson, Kansas City; H. L. Bryant, Coffeyville; R. E. Cheney, Salina; A. M. Dougherty, Dodge City; C. H. Fain, Pittsburg; D. O. Howard, Wichita; D. T. Loy, Great Bend; H. E. Morgan, Newton; D. P. Trimble, Emporia.

To The House of Delegates:

One meeting of the Committee on Conservation of Eyesight has been held during the past year, and a second meeting will be held before the annual session of the Kansas Medical Society.

Plans were made for a school eyesight testing program, a project which has since been carried out in many localities in the state. A letter explaining the program and soliciting the assistance of all physicians was sent to the secretary of each component society, with unusually good response. The committee is grateful for the splendid support given the program by the profession throughout the state.

An ophthalmologist, appointed by the chairman of the committee, spoke at each of the eight eye help institutes held last fall, outlining the program and giving instructions on how it was to be carried out. The committee feels that the program was successful, and recommends its continuation in the future.

Three qualifications for ophthalmologists serving under the program administered by the Division of Services for the Blind, Kansas Department of Social Welfare, were outlined as follows by the committee: (1) Membership in a county medical society affiliated with the Kansas Medical Society; (2) Practice limited to eye, ear, nose and throat; (3) Certification by the specialty board for eye, ear, nose and throat or, in lieu thereof, meeting the educational requirements of the board—one year or more of basic training in an approved residency or graduate instruction, plus two years in specialty practice.

The committee endorsed the drivers' education program sponsored by the Council of Drivers' Safety Education for Kansas, and asked its chairman to attend a meeting of the safety council and to report to the group the committee's recommendations. Among the recommendations were: (1) A change in the law requiring restricted licenses for persons declared industrially blind; (2) Staggering of driver's license renewals; (3) Use of larger numbers on car license plates.

The committee went on record as opposing the use and sale of firecrackers and air rifles and directed that a report on this action be sent to the president of the Kansas State Parent-Teacher Organization, soliciting support of that group in a move to restrict use of firecrackers and air rifles.

Respectfully submitted,
B. J. ASHLEY, M.D., *Chairman*

CONSERVATION OF HEARING AND SPEECH

L. B. Spake, Kansas City, Chr.; C. W. Armstrong, Salina; N. L. Francis, Wichita; J. A. Johnson, El Dorado; C. R. Kempthorne, Manhattan; E. E. Miller, Pittsburg; M. J. Rucker, Sabetha; G. E. Stone, Hutchinson.

To the House of Delegates:

The Committee on Conservation of Hearing and Speech will hold its annual meeting at the Town House, Kansas City, Kansas, during the meeting of the state society.

The survey in Leavenworth County is continuing with the necessary follow-up and the examination of the new incoming students.

We have been asked by a number of the local committees in the state to make a hearing and speech survey in these counties, but we feel that it is useless unless an otologist is available to make the right type of recommendation.

The full cooperation of the family physician is very essential, for any definite progress to be made with the handicapped individuals.

We hope to have further recommendations for the state society.

Respectfully submitted,
LAVERNE B. SPAKE, M.D., *Chairman*

CONSTITUTION AND RULES

A. W. Fegtly, Wichita, Chr.; W. M. Brewer, Hays; R. T. Nichols, Hiawatha; C. E. Vestle, Humboldt.

To the House of Delegates:

Anticipating for some months the proofs and the printing of the revised Constitution and By-Laws, no meetings of this committee have been called. Unavoidable delays and situations have prevented the completion of the proofs, hence this committee has been impatiently idle this year. No amendments are offered to this 1952 session, although several are contemplated.

It is hoped that the booklets can be distributed at the May session, or at least very soon thereafter. If the same committee is continued, they will welcome and request suggestions from individual officers, committees and/or members of the Society covering any portion of the Constitution or By-Laws after careful study.

Respectfully submitted,
A. W. FEGTLY, M.D., *Chairman*

CONTROL OF CANCER

C. H. Miller, Farsons, Chr.; J. P. Berger, Wichita; O. R. Clark, Topeka; A. A. Fink, Topeka; L. F. Glaser, Hutchinson; J. J. Hovorka, Emporia; W. J. Kiser, Wichita; M. V. Laing, Kansas City; O. F. Prochazka, Liberal; D. C. Reed, Wichita; R. H. Riedel, Topeka; C. D. Snyder, Winfield; R. E. Speirs, Dodge City; R. E. Stowell, Kansas City; J. T Swanson, Independence; J. F. Thurlow, Hays; G. M. Tice, Kansas City; L. E. Vin Zant, Wichita; K. E. Voldeng, Wellington.

To the House of Delegates:

This committee, as in previous years, has been very active throughout 1951 and 1952. The cancer supplement to the Journal of the Kansas Medical Society, consisting of the papers given at the Mid-west Cancer Conference in 1951, was sent to all the doctors of the medical society, as well as the senior students at the University of Kansas School of Medicine.

Continuing professional education, the committee, through a grant from the Kansas Division of the American Cancer Society, has been able to send the Cancer Bulletin as well as cancer monographs to all the doctors in the state, and, beginning in 1952, is also sending "Ca," a Cancer Bulletin published by the American Cancer Society, to the same group.

During the past year, this committee has surveyed the 28 diagnostic clinics in the state and its members have personally visited these clinics during the past four months. Many of these clinics are now recognized by the American College of Surgeons through the efforts of this committee.

A new history and examination blank for patients wishing a complete cancer examination is being tried out in several counties of the state and, if proven successful, will be distributed to all the doctors in the state as another step in cancer control. The Midwest Cancer Conference at Wichita, April 3 and 4, 1952, was again the major project of this committee and the high type speakers presented continues to make this one of the outstanding cancer meetings in the country.

The chairman wishes to take this opportunity to express his appreciation and thanks to the members of the committee for their excellent cooperation in the various projects and their attendance at the five meetings which were held throughout the year, and also to Mr. Ebel and his assistants for their help in the committee work. The Kansas Division of the American Cancer Society and the Department of Oncology of the University of Kansas Medical School have been very cooperative and of great help in carrying out the projects which the committee has attempted.

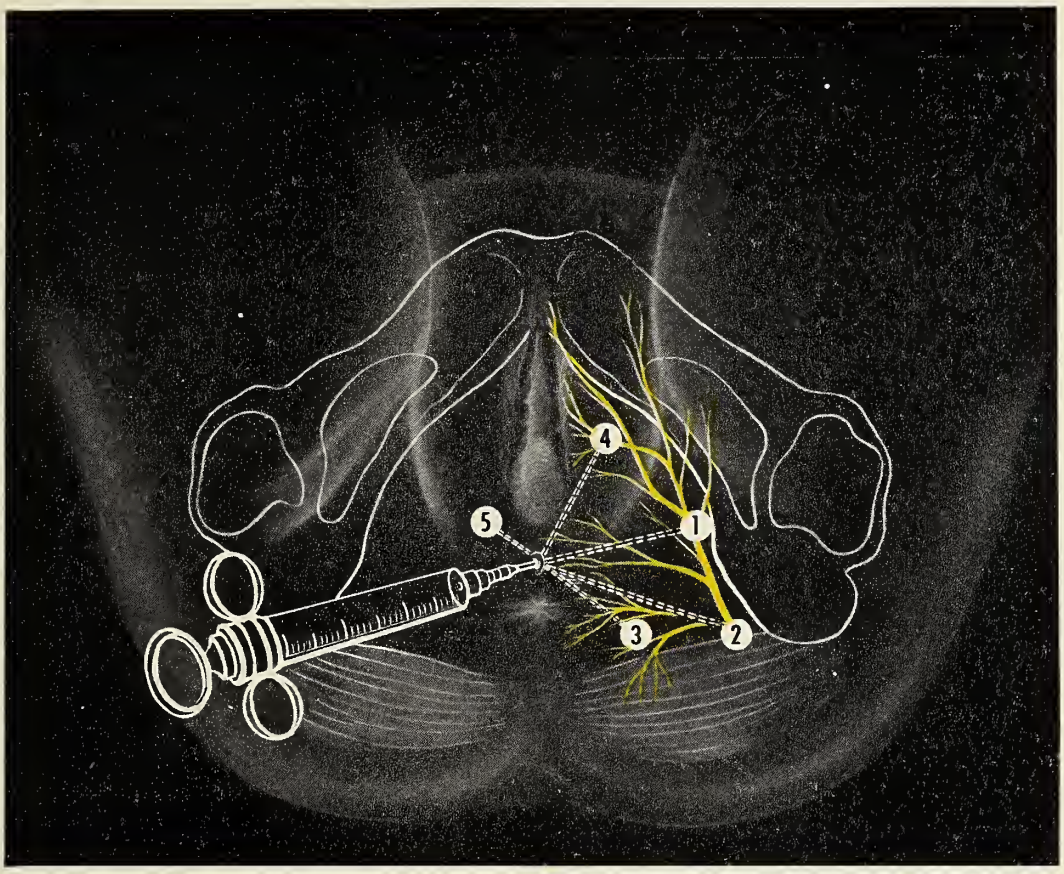
Respectfully submitted,
CHARLES H. MILLER, M.D., *Chairman*

CONTROL OF TUBERCULOSIS

W. G. Rinehart, Pittsburg, Chr.; A. L. Ashmore, Wichita; Andre Baude, Topeka; F. E. Bishop, Atwood; H. L. Bogan, Baxter Springs; R. I. Canuteson, Lawrence; H. L. Hiebert, Topeka; C. S. Huffman, Columbus; R. H. Moore, Lansing; P. W. Schafer, Kansas City; L. E. Strode, Girard; C. F. Taylor, Norton; F. A. Trump, Ottawa.

To the House of Delegates:

This committee discussed, among other things, the high incidence of tuberculosis in southeast Kansas and the lack of treatment facilities in that area. After considerable review of activities that have taken place both professionally and politically to solve this problem, the committee then approved a motion that the Kansas legislature be requested to establish and equip a tuberculosis hospital of approximately 100 beds somewhere in southeast Kansas and that it serve to diagnose and treat tubercu-



Sites for injection of local anesthesia in obstetrics. Sites 1 to 4 should be similarly injected on the contralateral side. Site 5 is for episiotomy. Adapted from Johnson, O. J.: Nerve Block in Painless Childbirth, J.A.M.A. *145*:401 (Feb. 10) 1951.

Pudendal Block in Obstetrics Simplified with **ALIDASE**

Using a local anesthetic with hyaluronidase, Heins[1] reports: "Complete perineal anesthesia is practically instantaneous. . . . The technique of pudendal block is greatly simplified. The operator does not have to inject the nerve per se, but infiltration in the vicinity of the nerve will accomplish an effective block."

Baum[2] states: "The use of hyaluronidase is found to be a safe and simple method for increasing the efficiency of pudendal block in obstetrics and for overcoming many of the objections to this type of obstetrical anesthetic."

ALIDASE®—highly purified, well tolerated brand of hyaluronidase—definitely shortens the period between completion of the block and establishment of operating analgesia. Swelling, induration and discomfort are almost negligible with Alidase.

[1]Heins, H. C.: Pudendal Block with Hyaluronidase, J. South Carolina M. A. *46*:309 (Oct.) 1950.

[2]Baum, F. E.: The Use of Hyaluronidase in Pudendal Block, Am. J. Obst. & Gynec. *60*:1356 (Dec.) 1950.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

RESEARCH IN THE SERVICE OF MEDICINE **SEARLE**

losis patients and be open to special and consultative services of the University of Kansas School of Medicine.

A second subject pertained to the photofluorographic units in operation by the Kansas State Board of Health and the inadequacy of the current follow-up program. The Kansas Tuberculosis and Health Association volunteered to make available the services of the Nursing Advisory Committee of their association for those areas that do not have full time public health services. Nurses can be given some training in the public health phases of tuberculosis nursing. It was also announced that in the future one unit will be concentrated in areas of high prevalence of the disease and that the two remaining units will be moved about the state in general county surveys. The plan was favored by the committee, and it is recommended that all physicians encourage adults to participate in chest x-ray screening programs.

The committee then discussed the tuberculin testing program in Kansas and agreed upon the following procedure. While recognizing its value in the elementary grades, it was recommended that the junior and senior high school students should annually be tested, with the intradermal test preferred.

Respectfully submitted,
W. G. RINEHART, M.D., *Chairman*

EMERGENCY MEDICAL CARE

W. H. Algie, Kansas City, Chr.; R. M. Carr, Junction City; R. W. Fernie, Hutchinson; G. F. Gsell, Wichita; G. W. Hammel, El Dorado; F. X. Lenski, Sr., Iola; M. Snyder, Salina; C. B. Trees, Topeka.

To the House of Delegates:

The Emergency Medical Care Committee has not undertaken any organized activity up to date this year. Due to the fact that it has been necessary to have the status of the medical society defined in its relationship to the civil defense organization and to the various local civil defense authorities and organizations, a part of our activity has been delayed. This situation has been clarified and we are now in position to go ahead with future work.

A representative of the committee attended a Medical Civil Defense Conference held in Chicago, November 9 and 10, 1951, and an inter-state meeting with representatives of the Missouri State Medical Society, the University of Kansas and the Washington University School of Medicine in St. Louis on January 27, 1952.

Tentative plans for organization of medical personnel and for development of an educational program for emergency medical care are now being considered.

Respectfully submitted,
WILLIAM H. ALGIE, M.D., *Chairman*

ENDOWMENT

J. W. Randell, Marysville, Chr.; F. K. Bosse, Atchison; V. E. Chesky, Halstead; G. H. Jackman, Cimarron; L. K. Nix, Wichita.

To The House of Delegates:

The principal activity of the Committee on Endowment during the past year, at the suggestion of the Committee on Medical Economics, has been in connection with the Dr. Croson Memorial Student Loan Fund at the University of Kansas School of Medicine.

The Student Loan Fund was set up originally with a contribution of $10,000 from the Kansas Medical Society during the year that Dr. Franklin Roy Croson served as president. After his death on November 7, 1951, the Council of the Society acted to make the official name of the foundation the Dr. Croson Memorial Student Loan Fund.

The fund is used for grants to senior students at the University of Kansas School of Medicine, with a maximum amount of $500 for any one person. Financial help to senior students is particularly important in Kansas now that the preceptor program prevents them from finding employment during the vacation period between the junior and senior years. Many are in financial difficulties during their last year at the university, and are grateful for help given through the fund.

The Kansas Medical Society recently made a second contribution to the fund, and individual donors have added approximately $1,000 since Dr. Croson's death. The Committee on Endowment endorses this project as a worthy one and hopes that substantial contributions will be received. Gifts are fully deductible for income tax purposes. Checks should be mailed to the Kansas Medical Society, 512 New England Building, Topeka, Kansas. A convenient blank for accompanying the check may be found on Page 215 of this issue of the Journal.

Respectfully submitted,
J. W. RANDELL, M.D., *Chairman*

EXPERT TESTIMONY

C. E. Joss, Topeka, Chr.; E. J. Frost, Wichita; J. L. Lattimore, Topeka; J. W. Spearing, Columbus; E. M. Sutton, Salina.

To the House of Delegates:

Several matters were referred to the Committee on Expert Testimony during the past year, but none came within the jurisdiction of this body so no meetings were held.

Respectfully submitted,
C. E. JOSS, M.D., *Chairman*

HOSPITAL SURVEY

J. L. Grove, Newton, Chr.; P. L. Beiderwell, Belleville; M. E. Christmann, Pratt; J. D. Colt, V, Manhattan; C. C. Fuller, Columbus; E. R. Gelvin, Concordia; G. W. Hammel, El Dorado; A. C. Hatcher, Wellington; L. D. Johnson, Chanute; O. W. Longwood, Stafford; R. M. Owensby, Mankato; H. C. Sartorius, Garden City; F. C. Shepard, Clay Center.

For Your Security and Peace of Mind

A DISABILITY
LIFE INCOME PROGRAM
FOR ELIGIBLE MEMBERS
OF YOUR STATE
PROFESSIONAL GROUP

Lifetime Protection for both Sickness & Accidents

A SILENT PARTNER . . . *Continental's Companion Policies*

ACCIDENT AND CONFINING SICKNESS

Pays $	400	Monthly Benefits first 2 years ($200 1st mo.) and
$	300	Monthly Benefits thereafter for life.
Pays $	600	Additional Monthly Benefits First 3 Months for Hospital Disability.
Pays $	7,500	Accidental Death Benefits, $12,500 Double Indemnity.
Pays $	10,000	Loss of Hands, Feet or Eyes, $15,000 Double Indemnity (or)
$	5,000	Cash, & $400 monthly first 2 years, $300 monthly thereafter.
		Adjusted benefits for disabilities occurring after age 60.

SPECIAL FEATURES

No Cancellation Clause,—Standard Provision 16
No Terminating Age,—Standard Provision 20
No Increase in Premium,—Once Policy is Issued
Grace Period 15 Days

Non Pro-Rating,—Standard Provision 17
Non-Assessable,—No Contingent Liability
Non-Aggregate,—Previous Claims Paid do not limit Company's Liability

Unusually Complete Protection

★ Pays Monthly Benefits from 1st Day to Life.
★ Pays Benefits for both Sickness and Accident.
★ Pays Lifetime Benefits for Time or Specific Losses.
★ Pays Regular Benefits for Commercial Air Travel.
★ Pays Benefits for Non-Disabling Injuries.
★ Pays Benefits for Non-Confining Sickness.
★ Pays Benefits for Septic Infections.
★ Pays Whether or not Disability is Immediate.
★ Waives Premiums for Total Permanent Disability.
★ Renewal is guaranteed to individual active members, except for non-payment of premium, so long as the plan continues in effect for the members of your designated organization.

CONTINENTAL CASUALTY COMPANY

PROFESSIONAL DEPARTMENT, *Intermediate Division*

30 EAST ADAMS STREET—SUITE 1100—CHICAGO 3, ILLINOIS

Also Attractive
Health With
Lifetime Accident
Policy I.P.-1327
For Ages 59 to 75

Name.....

Address.....

Age.....

NOTICE—**Only Companion Policies GP 1309 and IP-1308 pay the above benefits.**
IMPORTANT—Permit no agent to substitute—IMPORTANT

To the House of Delegates:

The Committee on Hospital Survey held no stated meeting in 1951.

A brief summary of new hospitals constructed and the enlargement of hospitals already functioning should be of interest. Thirteen new hospitals were opened in 1951 with 544 beds. Two hospitals enlarged their facilities, 50 and 20 beds respectively, making the total of new beds 614. Ten new hospitals were under construction, but not completed, with a bed capacity of 383. Nine additions to already established hospitals, not completed, will add 457 beds. This adds up to the imposing total of 1454 beds.

These beds fall in hospitals of the following classes:

10 hospitals rated from 50 beds and up.....867
12 hospitals rated from 24 to 49 beds.....386
12 hospitals and health centers from 3 to 24 beds 201

The geographical distribution seems satisfactory. New hospitals are located from the southeast quarter to the northwest section of the state.

A source of pride to Kansans should be reflected in the fact that nine of the 13 new hospitals opened last year were financed by local bond issues and the charitable enterprise of the citizenry in the benefited district. This was particularly true in rural communities. Here there was a deservedly popular response to the plan of Chancellor Murphy of Kansas University. This statewide concern for rural health has done much to increase the number of beds and improve hospital service.

Kansas is shifting from agriculture to industry. The urban centers, especially of large population, are naturally industrial. Here the demand is insistent and the need pressing for federal funds, which are being provided under the Hill-Burton Hospital Construction Act, to provide hospital beds and maintain health facilities. In the face of the staggering cost of materials and labor, Kansas is doing a reasonably adequate job of building for health.

May I suggest that next year's Committee on Hospital Survey mark for a major project the problem of comfortable housing and health care, both mental and physical, for the rapidly increasing number of "Human Antiques." This effort at geriatric care must include plans for the affluent as well as the indigent.

Respectfully submitted,
JOHN L. GROVE, M.D., *Chairman*

INDUSTRIAL MEDICINE

J. G. Hughbanks, Independence, Chr.; H. O. Anderson, Wichita; J. L. Beaver, Wichita; J. A. Grove, Newton; C. W. Hall, Hutchinson; H. L. Regier, Kansas City; R. W. Urie, Parsons; M. A. Walker, Kansas City; F. N. White, Russell.

To the House of Delegates:

The committee met once during the year, at which time it was confronted with the answering of a questionnaire sent out by the American Medical Association Council on Industrial Health, pertaining particularly to compensation cases and compensation laws in this state. It required considerable cerebration on the part of the committee to answer some of the questions, and a few of them caused one of the members to liken them to the old question as to whether you have stopped beating your wife.

The other item of importance was one that has confronted this committee for several years: the method of creating a better relationship in medicine between industry and labor. It is the thought of this committee that because of the excellent work that has been done along this line by previous committees, we will now be able to formulate a program that will be satisfactory to the physicians of the state and one that will be constructive to the relationship of both industry and labor. It is the opinion of this committee that the health and medical care of the laborer is paramount.

Respectfully submitted,
JAMES G. HUGHBANKS, M.D., *Chairman*

MATERNAL WELFARE

D. E. Gray, Topeka, Chr.; F. A. Allen, Newton; P. D. Brown, Salina; L. A. Calkins, Kansas City; H. C. Clark, Wichita; H. M. Floersch, Kansas City; G. M. Martin, Topeka; R. H. Maxwell, Wichita; H. S. O'Donnell, Ellsworth; R. A. Schwegler, Lawrence; R. A. West, Wichita.

To the House of Delegates:

The Committee on Maternal Welfare has held two meetings during the past year with a third scheduled after this report has gone to press.

The committee has prepared a revision of "Minimum Standards of Obstetrical Care" as noted in the report for the previous year. This revision is ready for its final editing and it is hoped that it will be in publication by the time of the annual meeting.

Cases of maternal mortality have been studied for the period January through August 1951. The cases considered have been analyzed on the basis of the information available and have been classified as preventable or non-preventable. An attempt has been made to establish responsibility in each case. The remainder of the cases for the year 1951 will be considered at the next meeting of the committee.

The committee is studying a revision in the maternal mortality questionnaire which has been suggested by the Board of Health. The question of reporting of still births and neonatal deaths by means of a similar questionnaire is also being considered.

In the field of lay education, the committee has canvassed the individual county and sectional soci-

Your Laboratories . . .
Our Responsibility



Duncan Laboratories
Established 1921
KANSAS CITY, MO., *909 Argyle Bldg.*
JOPLIN, MO., *230 Frisco Bldg.*

Associated Laboratories
INDEPENDENCE, MO.
Physicians Laboratory
First National Bank Bldg.
LEXINGTON, MO.
Lexington Memorial Hospital
SEDALIA, MO.
Bothwell Memorial Hospital
WARRENSBURG, MO.
Warrensburg Medical Center

Curbstone Consultation

In 1945, of the staphylococcic infections seen in hospitalized patients, 14% proved resistant to penicillin; by 1950, these penicillin-resistant cases of staphylococcic infections had risen to 50%.

This increase is undoubtedly related to the widespread and often indiscriminate use of penicillin in prior instances of minor infections in such patients.

Barber et al, Lancet 2: 1948, p. 641.
Rountree et al, Lancet 2: 1948, p. 801.

Pathologically Speaking

BACTERIAL SENSITIVITY TESTS

IN ORDER to choose *the best antibiotic* in treating a given infection, material from the infected area should be obtained for smear and culture *before* any antibiotic therapy is begun. Since Gram stained smears of the infected material often will reveal the predominating organism, therapy can then be immediately instituted on the basis of which antibiotics are *usually* most effective against the infecting organism.

Meanwhile, the culture allows for isolation of the specific organism or organisms, and plates of the pure cultures can then be treated with the standard six antibiotics which are now prepared as "sensitivity discs"; these include terramycin, aureomycin, chloromycetin, penicillin, streptomycin, and bacitracin. By reporting the size of the zones of inhibition of bacterial growth about each disc, the laboratory can then advise the physician which antibiotics are most effective against the particular organism involved and, if a drug other than the ones already used is more effective, the change in therapy can be made with the least possible loss of time to the patient. Should the organism prove insensitive to all of the above six drugs, further studies are done with one of the sulfonamides and with aerosporin.

It should be emphasized that, if the original material for culture is obtained *before* various drugs have been used, growth characteristics of the organism will not have been interfered with, and both bacterial growth and sensitivity studies to antibiotics will be more typical, clear-cut and direct—factors of great value to both physician and patient.

RALPH EMERSON DUNCAN, M. D.
LORAINE E. SCHULTZ, M. D.
ALBERT E. UPSHER, M. D.

eties in order to determine the manner in which obstetrical patients are oriented and instructed in matters relative to their pregnancies. The information obtained from these reports will be analyzed and used as a basis for recommendations for improving such service. A prepared information project known as the Pelican Series has been submitted by the Kansas State Board of Health for the committee's consideration. This series is to be given trial in one county in order to determine the advisability of using it more widely. This project will be continued for 18 months to two years.

The committee is sponsoring the reorganization of the Kansas Obstetrical and Gynecological Society and to that end is planning a meeting in conjunction with the meeting of the state society in Kansas City. All interested members of the society will be invited to take part in the organization and activities of this group.

Respectfully submitted,
DAVID E. GRAY, M.D., *Chairman*

MEDICAL ASSISTANTS

K. J. Bierlein, Pittsburg, Chr.; A. C. Armitage, Hutchinson; H. J. Davis, Topeka; M. T. Glassen, Phillipsburg; A. E. Hiebert, Wichita; J. A. Holmes, Lawrence; R. C. McClymonds, Walton; E. C. Rainey, Wichita.

To the House of Delegates:

Since the annual spring meeting on May 13, 1951, the Advisory Committee to the Kansas Medical Assistants' Society has met with the Executive Committee of the assistants' society on two occasions. On November 18, 1951, the group met in Arkansas City for the fall clinic with the chairman and Doctors Hiebert, Rainey, and Holmes present. President-elect Bernstorf addressed the luncheon. The meeting was well attended and public relations as well as doctor-patient relations were discussed. Several inquiries from assistant groups of other states were received, all of which indicated interest in forming a similar society.

The Advisory Committee met with the Executive Committee on January 20, 1952, in Kansas City, with Doctors Davis, Hiebert and the chairman present, at which time plans were made for the annual spring meeting on April 27 and 28, 1952. To determine the doctors' feelings toward the medical assistants' society, a questionnaire was sent to each member of the Kansas Medical Society. The response was very favorable. We believe that the doctors are becoming more aware of the medical assistants' society and the good they have been doing, especially in regard to our public relations.

Out of approximately 200 replies to the questionnaire, 90 per cent reported that they were familiar with the Kansas Medical Assistants' Society; 92 per cent have receptionists and/or assistants; 54 per cent reported that their employees are now members of the society; 91 per cent gave their approval to the organization, and 67 per cent stated that they have suggested that their assistants belong.

Respectfully submitted,
K. J. BIERLEIN, M.D., *Chairman*

MEDICAL ECONOMICS

R. Sohlberg, Jr., McPherson, Chr.; C. M. Alderson, Dodge City; J. N. Blank, Hutchinson; A. W. Butcher, Wakefield; T. Dechairo, Westmoreland; R. L. Gench, Fort Scott; G. E. Milbank, Wichita; C. V. Minnick, Junction City; B. A. Nelson, Manhattan; L. S. Nelson, Jr., Salina; P. A. Petitt, Paola; E. L. Robinson, Independence; LeRoy Shepherd, Larned; H. L. Songer, Lincoln.

To the House of Delegates:

This year the Committee on Medical Economics completed a survey of health and accident insurance in Kansas begun by this committee several years previously. Several interim reports on this subject were given to the Council, and after obtaining approval from that body, the committee now announces the following program available to the physicians of Kansas.

The Commercial Casualty Company of Newark, New Jersey, has substantially increased the benefits of a policy previously endorsed by the medical society. The committee recommends this program to the Kansas Medical Society as an excellent basic low-cost sickness income program. It is believed that another open enrollment will be scheduled in the fall, at which time physicians not currently carrying this policy may obtain it, should they wish to do so, without being required to establish proof of insurability.

In addition, at somewhat higher cost than the above, the committee now announces that there will shortly be available to all members under the age of 70 years another sickness and accident income policy sold by the Washington National Insurance Company. The purchase of either or both policies is entirely voluntary and dependent upon the individual physician's interest in this project and his total insurance program. However, with the approval of this new plan, the doctors of Kansas have available to them, without the necessity of proving insurability, two separate policies, each affording approximately $300 monthly income plus other benefits. Details of this program will be mailed to each member of the Society, but the committee wishes to report at this time that the formulation of the above program occupied considerable time and represents one of its major projects.

The committee has cooperated with the president in his survey of the general medical care program relating to the Board of Social Welfare. Details of this effort will be reported elsewhere.

In cooperation with the Committee on Endowment, this committee has explored the possibilities of creating a tax-exempt retirement income pro-

Now Offering to the

MEMBERS OF THE KANSAS MEDICAL PROFESSION

A Lifetime Income Protection

WITH SPECIAL RENEWAL AGREEMENT

Issued by

UNITED INSURANCE COMPANY

CHICAGO, ILLINOIS

SICKNESS OR ACCIDENT
(Total Disability)

Monthly Benefit for Accident for life..... **$300.00**

Monthly Benefit for Sickness for 12 months..... **$300.00**

And then $150 per month thereafter
FOR LIFE
Confinement Not Required

Total Monthly Benefit in Hospital for 3 months..... **$600.00**
(Including Disability Benefit Above)

SPECIFIED TRAVEL ACCIDENTS

Monthly Benefit FOR LIFE **$600.00**

Total Monthly Benefit in Hospital for 3 months..... **$900.00**
(Including Disability Benefit Above)

ORDINARY ACCIDENTS

Loss of both hands, feet, eyes; one hand and one foot; either hand or foot and one eye, monthly benefit FOR LIFE **$300.00**

Loss of either hand or foot monthly benefit for 20 months.... **$300.00**

Loss of sight of one eye monthly benefit for 10 months..... **$300.00**

Loss of Life..... **$5,000.00**
(and in addition, the monthly and hospital benefit for the period between date of accident and date of death)

SPECIFIED TRAVEL ACCIDENTS

All Ordinary Accident Loss of Limb, Sight and Life benefits above will be doubled if such accident occurs while riding as a passenger on any railway or street railway passenger car or bus.

House Confinement Not Required to Receive Full Benefits

WAIVES PREMIUM DURING TOTAL DISABILITY CONTINUING FOR MORE THAN 90 DAYS
PROFESSIONAL INCOME POLICY WITH OUTSTANDING FEATURES

★ Pays Monthly Benefits from 1st day of medical attention to life
★ Pays Benefits for Both sickness and accident
★ Pays Lifetime Benefits for Time or Specific Losses
★ Pays Regular Benefits for Commercial Air Travel
★ Pays Benefits for Non-Disabling Injuries
★ 24-hour Coverage—On or Off the Job
★ Special Renewal Agreement, no Terminating Age
★ 33 Years of Service to the Public
★ Incontestable Clause
★ The Silent Partner
★ No Increase in Premium
★ No Terminating Age
★ Grace Period 10 Days
★ Non-Pro-Rating
★ Non-Assessable
★ Non-Aggregate

FULL INFORMATION WILL BE PROMPTLY FORWARDED

UNITED INSURANCE COMPANY

LIFETIME PROFESSIONAL INCOME DEPARTMENT
387 New Brotherhood Building, Kansas City, Kansas

Name_____

Address_____

Age_____

gram for the members of the Kansas Medical Society, but at the moment is unable to report any attractive opportunity in this regard. Until existing federal laws are altered, such projects, even though conducted by non-profit organizations, are taxable both at the source and at the point of distribution.

The committee further has made an effort to study the possibility of contracting for the benefit of the membership a low-cost group life insurance program, but has been unsuccessful in its negotiations with numerous insurance companies up to this time.

In the middle of this fiscal year, the committee was prepared to report numerous constructive changes in its operation of Workmen's Compensation. These were in effect for a brief period, but upon the recent resignation of the Workmen's Compensation commissioner for the state of Kansas, the program that might have been announced at this meeting was inactivated. The successor to this office has been so recently appointed that whatever future course will be followed by the commission is not yet determined.

Respectfully submitted,
R. SOLHBERG, JR., M.D., *Chairman*

MEDICAL SCHOOLS

H. H. Jones, Sr., Winfield, Chr.; R. G. Ball, Manhattan; C. M. Barnes, Seneca; J. G. Claypool, Howard; D. M. Diefendorf, Waterville; C. A. Gripkey, Kansas City; V. H. Hildyard, Baldwin; M. B. Miller, Topeka; H. P. Palmer, Scott City; R. C. Polson, Great Bend; R. E. White, Garnett.

To the House of Delegates:

This committee met with the members of the faculty of the University of Kansas School of Medicine to outline the scientific program for the circuit courses and the general graduate education program at the school of medicine for the coming year. Details involve acceptance by invited guest speakers, and since this list is not currently available the committee begs leave to make a supplementary report at the time of the House of Delegates meeting.

Respectfully submitted,
H. H. JONES, SR., M.D., *Chairman*

MENTAL HEALTH

T. L. Foster, Halstead, Chr.; A. J. Adams, Wichita; R. L. Drake, Wichita; D. B. Foster, Topeka; J. T. Fowler, Osawatomie; E. D. Greenwood, Topeka; L. W. Hatton, Salina; C. C. Hawke, Winfield; C. J. Kurth, Wichita; W. C. Menninger, Topeka; J. T. Naramore, Larned; W. F. Roth, Jr., Kansas City.

To the House of Delegates:

The Mental Health Committee has continued to hold regular meetings throughout the year. Several joint meetings were held with the Committee on Commitment Laws of the bar association. A proposed law was presented to the 1951 legislature which embodied certain revisions that are recommended by the United States Public Health Service in their model commitment law and are already in practice in some 12 other states.

This was proposed as House Bill 371. Although the bill was killed in the committee, the legislature recommended that the Legislative Council give the matter of commitment serious study. On October 22 this matter was presented to the Judiciary Committee of the Legislative Council by Dr. D. B. Foster of our committee; Mr. Jack Copeland, chairman, and Judge James Rexroad from the committee of the bar association.

The following are the main points that were presented to the Legislative Council:

1. Kansas commitment statutes should be modified to take cognizance of the fact that simple old age is not a mental illness and does not require institutional care, that our institutions are overcrowded with the so-called "senile" patients. These patients do not need and in most cases are adversely affected by institutional care.

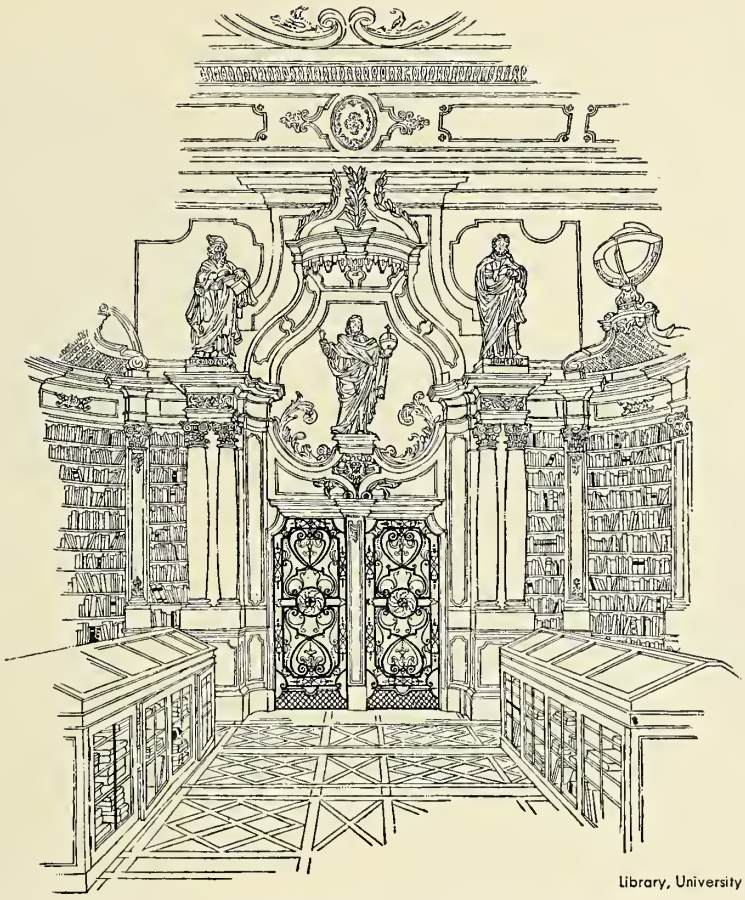
2. The proposed new commitment law would substitute the words convulsive disorder for epilepsy and would give otherwise healthy persons with periodic convulsive seizures the protection of a purely medical decision regarding their commitment.

3. The present commitment procedures are a handicap in securing early diagnosis and early treatment of nervous and mental disorders. It is only through early diagnosis and early treatment that we are going to be able to decrease the present high percentage of custodial care patients.

4. Many persons are held back from early treatment for themselves or their families because our laws treat them as criminals rather than sick persons. The following terminology used in criminology is at present applied to the mentally ill: arrest, warrant, hearing, court, county jail, parole, inmate, commitment, custody, accused person, complaints, transportation by sheriff. Commitment statutes should be revised to substitute medical terms such as patient, hospitalization, illness, etc.

5. In 1900 when our present laws were written, insanity was considered a single and specific disease and a person was considered to be either sane or insane. If insane, he was considered utterly incapable of judiciously using his citizenship rights. This concept has changed. The proposed modification of the commitment law would require special court hearing in order to establish an individual's legal incompetence because of mental illness. Hospitalization would not in itself be sufficient grounds for deprivation of citizenship rights.

6. The commitment statutes of Kansas should be modified to enable all mentally sick persons without discrimination to be admitted on certification of a licensed physician rather than through a court hearing reminiscent of a criminal trial. Like a piece of wornout and outdated machinery in a



Library, University of Belgium

from among all antibiotics, Surgeons often choose

AUREOMYCIN

Hydrochloride Crystalline

because

Aureomycin exhibits little tendency to favor the development of resistant strains of bacteria.

Aureomycin rapidly penetrates all tissues of the body, particularly those of the gastrointestinal tract, and it has been found useful prophylactically in surgery of the tract.

Aureomycin has been reported to be effective against susceptible organisms in—

Abscess
Actinomycosis
Carbuncles
Cellulitis
Empyema
Furunculosis
Gallbladder Infection
Human Bites
Infected Burns
Intestinal Perforation
Peritonitis
Soft Tissue Infection
Ulcerative Colitis
Vascular Infection
Wound Infection

Throughout the world, as in the United States, aureomycin is recognized as a broad-spectrum antibiotic of established effectiveness.

Capsules: 50 mg.—Bottles of 25 and 100. 250 mg.—Bottles of 16 and 100.
Ophthalmic: Vials of 25 mg. with dropper; solution prepared by adding 5 cc. of distilled water.

LEDERLE LABORATORIES DIVISION AMERICAN Cyanamid COMPANY 30 Rockefeller Plaza, New York 20, N.Y.

modern factory, Kansas commitment statutes are bottlenecks. In nationally recognized treatment programs of the mentally ill, at least 10 other states are far ahead of Kansas in this respect. Their laws recognize that it isn't always necessary to place a judge and a sheriff between the sick person, the doctor, and the doctor's workshop, the mental hospital. We hope that our friends in other specialties in the medical field will help us remove this legal barrier that stands between us physicians and our patients.

The committee went on record as endorsing as absolutely necessary one or more children's psychiatric centers for the state of Kansas, as we have at present no place in the state to hospitalize a severely emotionally ill or disturbed child.

This committee went on record to recommend that the state of Kansas accept as a working basis the modern concept of convulsive disorders formerly referred to as "epilepsy;" that at present with our modern anti-convulsive drugs there is no reason for any individual to be hospitalized because of convulsions; that the idea of an epileptic colony is now obsolete; that individuals with convulsions may require hospitalization because of mental deficiency, organic brain damage, neuroses, or psychoses and that these individuals be hospitalized in the appropriate institutions rather than being arbitrarily sent to an "epileptic hospital;" that our two institutions, Winfield and Parsons, could be utilized —one of them as an institution for custodial care of those individuals that we now consider hopeless and the other could be reorganized into an institution for rehabilitation of those individuals of low mentality who can be restored to society; that the present so-called "epileptic" population be distributed among the institutions that are appropriate for taking care of the condition which has caused their hospitalization whether it be mental deficiency, psychoses, physical disorders, or old age.

This committee's attention was called to the fact that the 1951 Legislative Act providing for education for exceptional children did not provide adequate standards for teachers working under this act nor did it provide adequate standards for the schools. Dr. Edward Greenwood was designated by the committee to give any assistance desired to the Kansas Department of Education in drawing up such standards.

At the request of the State Board of Health, individual members of this committee conferred with individuals from the State Board of Health offering what assistance they could in setting up standards for old folks' homes.

The committee recommended that a study be made of mental health problems in Kansas State Industrial Reformatory at Hutchinson. A visit was made to that place in November, 1950. The matter has been discussed during the current year. It was very obvious to this committee that a mental health problem exists in that institution. The institution is fully aware that they badly need the services to be offered by psychologists, psychiatrists and social workers but no study has ever been made to determine how extensive a mental health service would be desirable and necessary.

The chairman of this committee wishes to give special recognition to Dr. D. B. Foster who has worked untiringly at a great deal of personal sacrifice, particularly in the matter of commitment laws, and also to Mr. Jack Copeland and his committee from the Bar Association who have met with us every time we have requested a meeting and have cooperated in every way in assisting us with the legal aspects of the work of this committee throughout the past year.

Respectfully submitted,

THOMAS L. FOSTER, M.D., *Chairman*

NECROLOGY

J. D. Colt, Sr., Manhattan, Chr.; E. C. Duncan, Fredonia; C. S. Huffman, Columbus.

To the House of Delegates:

The Committee on Necrology submits the following list of members of the Kansas Medical Society whose deaths have been reported since the last meeting of the House of Delegates:

Name and Address	*Age*	*Date* 1951
Dr. Samuel D. E. Woods, Osawatomie	73	Apr. 2
Dr. Claude Emett Hamill, Parsons	74	Apr. 6
Dr. Franklin Walter Koons, Halstead	79	Apr. 18
Dr. Lucena Chase Axtell, Newton	85	May 5
Dr. Andrew Allen Olson, Wichita	52	May 15
Dr. Fred Edward Patrick, Jr., Mission	32	May 16
Dr. William Lucas Butler, Stafford	64	May 25
Dr. Walter J. Pearson, Kansas City	86	June 1
Dr. Hector Morrison, Smith Center	81	June 6
Dr. William Law Wilmoth, Blue Rapids	80	June 21
Dr. Charles E. Yates, Baldwin	78	June 30
Dr. Harold James Bagby, Coffeyville	56	July 6
Dr. Carroll Dunham Armstrong, Salina	70	July 11
Dr. Samuel Monteith Myers, Corning	74	Aug. 18
Dr. Oliver John Corbett, Emporia	75	Aug. 24
Dr. Harris W. Manning, Emporia	83	Sept. 8
Dr. Charles Alfred Thomas, Coffeyville	74	Sept. 11
Dr. William Tilton Rich, Neodesha	45	Sept. 14
Dr. Alexander Hodge Bressler, Wamego	79	Sept. 18
Dr. Edward Emmett Henderson, Columbus	84	Nov. 5
Dr. Franklin Roy Croson, Clay Center	59	Nov. 7
Dr. Onnie Earle Stevenson, Parsons	69	Nov. 13
Dr. John Alfred Dillon, Larned	78	Dec. 3
Dr. Leonard Somerville Steadman Junction City	80	Dec. [illegible]
Dr. Delbert Otto Haage, Augusta	47	Dec. 7
Dr. Otto Andrew Hennerich, Hays	66	Dec. 7
Dr. John Alvin Mahre, Victoria	28	Dec. 20
Dr. Ingall Howard Neas, Kansas City	43	Dec. 25 1952
Dr. Alva E. Billings, Topeka	72	Jan. 16
Dr. Francis A. Carmichael, Kansas City, Missouri	80	Jan. 21
Dr. Charles Warner Jones, Olathe	76	Jan. 28

STILL *setting the fashion trend*



right through the menopause

...on oral estrogen therapy that imparts ***no odor, no taste, no aftertaste***

Convince her that the climacteric is not the be-all and end-all of her life and you solve, perhaps, her most serious problem. Then, prescribe SULESTREX. As effective estrogen therapy as science has yet created, SULESTREX will conveniently, esthetically and rapidly end the physical symptoms. Odorless and tasteless in small compressed tablets, SULESTREX will never cloud her breath or perspiration.

Following a study of 58 standardized menopausal patients, in which all attained complete symptomatic relief, Perloff[1] termed SULESTREX a "potent and effective oral estrogen with an extremely low incidence of nausea." Another recent report on a controlled study by Reich and associates[2] states that "all patients noted a marked sense of well-being, and commented on their ability to resume normal activity with amazing vigor."

Now available in three potencies for your prescribing convenience—0.75-, 1.5- and 3-mg. grooved tablets—SULESTREX is stocked by pharmacies everywhere. Try this esthetic therapy soon or write for complete information. Abbott Laboratories, North Chicago, Illinois. Abbott

1. Perloff, Wm. H., (1951) Treatment of the Menopause. II. Amer. J. Obst. & Gynec., 61:670, March. 2. Reich, W. J., et al. (1951), A Recent Advance in Estrogenic Therapy. I. American J. Obst. & Gynec., 62:427, August.

Sulestrex

TRADE MARK

(PIPERAZINE ESTRONE SULFATE, ABBOTT)

Dr. James Waldo Risdon, Leavenworth	74	Jan. 30
Dr. John Calvin Ulrey, St. John	75	Feb. 24
Dr. Seth Leroy Cox, Topeka	71	Feb. 26
Dr. Alexander C. Craig, Topeka	69	Feb. 29
Dr. Charles Napoleon Petty, Altamont	83	Mar. 16
Dr. Philip Johnson Clark, Hays	36	Mar. 23

Respectfully submitted,
J. D. COLT, SR., M.D., *Chairman*

NOMINATING COMMITTEE

J. H. A. Peck, St. Francis, Chr.; O. W. Davidson, Kansas City; J. L. Lattimore, Topeka; L. S. Nelson, Salina; H. N. Tihen, Wichita.

To the House of Delegates:

According to the Constitution and By-Laws the Nominating Committee, consisting of five past presidents elected by the House of Delegates, shall nominate two or more candidates for each elective position not less than 90 days prior to the annual meeting.

The committee met at Kansas City, Kansas, on Wednesday, January 23, 1952, and reported its nominations in the February and March issues of the Journal of the Kansas Medical Society.

It should be noted that further nominations will be called for from the floor, permitting the entry of as many additional names as may be desired. At the request of two members on the Nominating Committee whose names appear as candidates, it should be explained that all present officers were re-nominated and that this was the first action taken by the committee with the two persons involved abstaining from such vote.

It should be noted also that the president-elect and first vice president incumbents are moved forward one place from the positions held this year. The incumbent is named first except for the position of second vice president where there is no incumbent, and there the names appear in alphabetical order.

Candidates for 1952

President-elect	L. R. Pyle, M.D., Topeka P. W. Morgan, M.D., Emporia
First vice president	M. C. Eddy, M.D., Hays J. G. Hughbanks, M.D., Independence
Second vice president	H. H. Jones, Sr., M.D., Winfield J. M. Porter, M.D., Concordia
Constitutional secretary	D. D. Vermillion, M.D., Goodland J. D. Colt, Jr., M.D., Manhatan
Treasurer	J. L. Lattimore, M.D., Topeka Dwight Lawson, M.D., Topeka
A.M.A. Delegate (term of 1953-1954)	L. S. Nelson, M.D., Salina T. P. Butcher, M.D., Emporia
A.M.A. Alternate Delegate (term of 1953-1954)	G. F. Gsell, M.D., Wichita C. V. Black, M.D., Pratt

Respectfully submitted,
HADDON PECK, M.D., *Chairman*

PUBLIC HEALTH AND EDUCATION

C. W. Miller, Wichita, Chr.; V. E. Brown, Sabetha; D. H. Macrae, Topeka; B. H. Mayer, Ellsworth; J. D. McMillion, Coffeyville; L. W. Reynolds, Hays; A. W. Sandidge, Mulberry; G. R. Shepherd, Kansas City; D. L. Tappen, Topeka; N. W. Wells, Winfield.

To the House of Delegates:

This committee began work on a new project of public relations and rapidly discovered the magnitude of its undertaking would require more time than one year. This, therefore, is a report indicating more what is hoped may be done than an account of definitive action that has been accomplished.

It was determined that the Kansas Medical Society should outline a program for continued public relations effort, and it was concluded that a public opinion poll was the first requirement. Lacking necessary funds to employ personnel for a state-wide survey, and in the belief that this was not essential, the committee obtained Council approval for the expenditure of limited money for a different type of project than is usually conducted in surveys of this kind.

It was determined to invite for dinner selected representatives of various occupational and professional groups. For example, at one such meeting eight or ten of the acknowledged industrial leaders of the state were invited. At another the selection was made from the A. F. of L., etc. This survey is not yet completed. Groups of ministers, housewives, small businessmen, the C. I. O., and others are still to be included. The purpose is to ask these persons two primary questions, the first a frank opinion of what they think is wrong with the medical profession and the second being what they would do to correct such a situation if it existed in their industry or profession.

Meetings held to date have proved extremely interesting, in which invited guests have spoken frankly with the guarantee of immunity as far as personal identity is concerned, and when completed this should obtain for the medical profession of this state a reasonably correct picture of a considerable segment of public opinion regarding medicine. Should details of the discussions held to date be desired by the House of Delegates, your chairman will be glad to make a supplementary report on that subject. It is of course proposed that a detailed report of this survey be published upon its completion.

It is already apparent that the public opinion poll will reveal three major areas in which further public relations activity might be conducted. The first represents the need for improved services. This is an internal problem, and in the line of information available at present will include such items as occasional excessive charges, difficulty in finding physicians who are willing to make home calls, etc.



More and more doctors are prescribing Daricraft Homogenized Evaporated Milk for babies . . . and for convalescent diets

Always uniform in quality, safe, sterilized, high in food value and minerals. Contains 400 U. S. P. units Vitamin D per pint of Daricraft. Easily digested.



PRODUCERS CREAMERY CO., SPRINGFIELD, MO.

Therapy for Vascular Headache to Reverse the Physiologic Disturbance

Headache, a problem encountered in all kinds of medical practice, may occur in association with any of a variety of disorders, some organic, other purely functional.

Among the several types, functional headaches present the greatest problem because of their obscure etiology and recurrent nature.

Among these are:

Migraine (both classical and variant forms)
Tension headache
Psychogenic headache
Histaminic cephalgia

Wolff and his co-workers established that the pain of these headaches is due to disturbance of the tonus of cranial blood vessels — hence the term *vascular headaches.*

The craniovascular changes associated with the several phases of the typical migraine attack are:

Vasoconstriction — to which the visual prodromata are attributable. It is possible to abort the attack during this phase in all but a few cases. (See treatment below.)

Vasodilatation — as the vessels lose their tone, exaggerated pulsations set in, resulting in the throbbing pain which characterizes vascular headache. Treatment for the attack is still effective during this phase. (See below.)

Vessel Edema — if the vasodilation continues for too long, vessel walls become edematous; this changes the character of the pain to a steady, intense aching. The attack can now no longer be checked, even with maximum dosage of specific drugs. *Moreover, sustained headache often induces reflex neck muscle tension, a source of residual pain.*

Therapy: 1. Reduce the frequency of attacks — psychotherapy and regulation of living habits to avoid fatigue and nervous tension.

2. Relieve the acute attack — of the numerous drugs which have been tried, ergotamine and its derivative preparations have proved most effective. The newest product is oral tablets of Cafergot®, N. N. R. (ergotamine with caffeine 'Sandoz'). When dosage is adjusted to the needs of the individual, Cafergot will give good relief in 85% of cases. It enables a greater number of patients to benefit from early administration since the oral route simplifies treatment as compared to parenteral therapy.

The dosage procedure is:

1. Take 2 tablets at first sign of the attack.
2. If attack continues, take one additional tablet every ½ hour until attack is terminated *(max. 6 tabs. per attack).*

Many migraine patients delay taking medication until the attack is at its height. Explicit dosage instructions may be forgotten unless the patient comes to realize their importance. Therefore, to encourage adherence to correct procedure, we have prepared pads outlining detailed dosage instructions. Supplies of these INSTRUCTION SLIPS will gladly be sent upon request.

GENERAL REFERENCES: DeJong, R.: Chicago M. Soc. Bull *54:* 106, 1951.. Friedman, A.: Modern Headache Therapy, St. Louis, C. V. Mosby Co., 1951. Wolff, H.: Headache and Other Head Pain, N. Y., Oxford Univ. Press, 1948.

Sandoz Pharmaceuticals
DIVISION OF SANDOZ CHEMICAL WORKS, INC.
68 CHARLTON STREET, NEW YORK 14, N. Y.

These items will be enumerated when the survey has been completed, and at that point your committee will evaluate this general area with the view toward recommending to the profession specific ways in which medical care may be improved.

The second area for future activity represents that of public lack of information, and the third, which is similar but significantly different, is that of public misinformation. Specific details, as in the above, will be available when the survey is completed, but numerous examples are already apparent in each of these areas which open the opportunity for an extensive public information campaign. It has been learned, for instance, that there is an apparent lack of understanding of the value of laboratory procedures, and there is misunderstanding regarding the various specialties in medicine.

It appears to your committee that a haphazard public information effort is a wasteful procedure, so the committee therefore recommends that the results of the completed public opinion poll be analyzed and that subsequent to that effort a concerted public information program be designed to correct whatever errors in public thinking are found to exist within the above named areas.

The committee had hoped to submit a conclusive report at this time, but as stated above found the magnitude of this project to be such that it could not be completed within the allotted time of one year. The committee therefore respectfully requests the continuation of this project into the future with the authorization that as proposals for action are recommended they might be submitted to the Council for implementation.

Respectfully submitted,

C. W. MILLER, M.D., *Chairman*

RURAL HEALTH

J. H. A. Peck, St. Francis, Chr.; L. E. Beal, Fredonia; I. R. Burket, Ashland; D. C. Chaffee, Abilene; J. G. Claypool, Howard; R. M. Daugherty, Meade; J. C. Dysart, Sterling; A. C. Eitzen, Hillsboro; J. T. Fowler, Osawatomie; L. G. Glenn, Protection; H. L. Graber, Hutchinson; A. J. Horejsi, Ellsworth; R. E. Jordan, Holton; J. F. Nienstedt, Beloit; Corbin Robison, Hoisington; M. E. Robinson, Goodland; E. A. Smiley, Junction City.

To the House of Delegates:

The chairman of the Rural Health Committee is very happy to report that his group was very cooperative and manifested much interest in the problem of supplying complete medical care for the rural areas in our state.

Two meetings were held during the year, with 20 interested people at the second. In addition to the committee, there was representation from the dental profession, drug profession, hospital association, nursing profession, two architects and one contractor. The purpose of this meeting was to design a hospital suitable to accomplish complete medical care for the average rural community. Particular emphasis was placed on a design that would provide economy in construction and operation, facilities for the care of the acute mental patient, and a connected structure for the care of the aged.

To accomplish this plan will require much time, thought, trial and error. It is the feeling of the committee that the taxpayers of Kansas would have been saved thousands of dollars if this plan could have been effected several years ago. It is a very pleasant situation to have the wholehearted support of the allied professions and also to have the privilege of working with an interested committee.

Respectfully submitted,

J. H. A. PECK, M.D., *Chairman*

STORMONT MEDICAL LIBRARY

E. L. Kalbfleisch, Newton, Chr.; E. Beebe, Olathe; A. R. Chambers, Iola; L. C. Hays, Cedarvale; E. B. McKnight, Alma; F. A. Moorhead, Neodesha; Roy Moser, Holton; C. M. Nelson, Oberlin; A. K. Owen, Topeka; W. L. Valk, Kansas City.

To the House of Delegates:

As chairman of the Committee on Stormont Medical Library, I have made two visits to the library. There is some change in the system, and I found a number of good new books and the usual file of magazines.

I did not see the librarian but I was pleased with the service given by the assistant in charge.

Respectfully submitted,

E. L. KALBFLEISCH, M.D., *Chairman*

STUDY OF HEART DISEASE

P. W. Morgan, Emporia, Chr.; D. R. Bedford, Topeka; P. M. Clark, Jr., Independence; K. L. Druet, Salina; C. W. Erickson, Pittsburg; L. H. Leger, Kansas City; F. J. McEwen, Wichita; G. L. Norris, Winfield; H. W. Palmer, Wichita; L. O. Peckenschneider, Halstead; J. M. Porter, Concordia; D. C. Wakeman, Topeka.

To the House of Delegates:

The Committee for the Study of Heart Disease held several meetings during the past year.

During October a four-day advanced postgraduate refresher course was conducted by Dr. Travis Winsor of Los Angeles under the auspices of the committee. As usual, the course was over-subscribed.

In November a one-day meeting open to any member of the Kansas Medical Society was held at Winter V.A. Hospital in Topeka. Members of the faculty of the University of Kansas School of Medicine and several physicians from over the state presented talks. Dr. Ed Massie of St. Louis was the special speaker, and his expenses were defrayed by heart diseases control funds provided through the Kansas State Board of Health. This same agency mimeographed the notes of Dr. Winsor's presentations for the matriculants in the October EKG course.

The Kansas State Board of Health has continued to budget and pay half the salary of Dr. Thomas

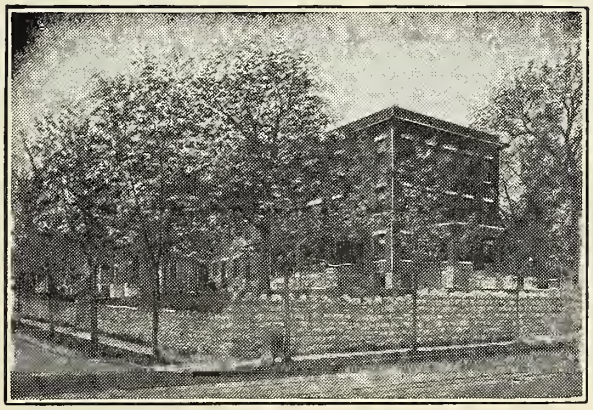
Refresh...add zest to the hour



THE MAJOR CLINIC ASSOCIATION

3100 EUCLID AVENUE KANSAS CITY, MISSOURI

A Well Equipped Institution for the Nervous and Mental Diseases and Alcohol Drug and Tobacco Addictions



Beautiful Location Large, Well Shaded Grounds Spacious Porches, All Modern Methods for Restoring Patients to a Normal Condition

Elderly People Accepted — Special Rates

HERMON S. MAJOR, M.D.
Medical Director

HERMON S. MAJOR, JR.
Business Manager

Hail, pediatric cardiologist of the University of Kansas Medical Center, to aid in state-wide professional and lay education advised by this committee. The board is also paying half the salary of a nurse to aid in this program.

The committee's recommendation that more educational material be supplied professional and lay groups will probably be cared for jointly by the Kansas State Board of Health and the Kansas Heart Association.

The members of the committee unselfishly cooperated at all times in arranging the projects just mentioned. The committee's experience and information have at all times been put at the disposal of interested physicians throughout the state and the board of health.

The members of the committee wish particularly to thank the office of the executive secretary of the Kansas Medical Society, the medical school administration and faculty, the Winter V.A. personnel and the Kansas State Board of Health for their sincere interest and cooperation at all times.

The October four-day advanced refresher course for 1952 will be conducted by Dr. E. Cowles Andrus, director of the heart station at Johns Hopkins Medical School, Baltimore, Maryland.

Respectfully submitted,

PHILIP W. MORGAN, M.D., *Chairman*

VENEREAL DISEASE

M. H. Delp, Kansas City, Chr.; M. L. Bauman, Wichita; T. R. Conklin, Jr., Abilene; L. E. Filkin, Concordia; H. L. Harris, Topeka; M. E. Hyde, Ottawa; W. Mau, Topeka; H. E. Neptune, Salina; G. S. Voorhees, Leavenworth.

To the House of Delegates:

In a poll of the members of this committee it was suggested that the problems relating to venereal disease and its treatment had not altered sufficiently during the course of the last year to justify a meeting of the committee. Therefore, upon the advice of the members of the committee, no meeting was called.

Respectfully submitted,

M. H. DELP, M.D., *Chairman*

VETERANS ADMINISTRATION AFFAIRS

E. A. McClintock, Topeka, Chr.; R. E. Capsey, Centralia; Spencer Fast, Atchison; E. R. Hill, Lyons; Kenneth Hunter, Lebo.

To the House of Delegates:

No matters which required action came to the attention of the Committee on Veterans Administration Affairs, so no meetings were held during the past year.

Respectfully submitted,

E. A. MCCLINTOCK, M.D., *Chairman*

Kansas Physicians' Service

To The House of Delegates:

During the past 12 months Blue Shield established itself even more firmly as a successful enterprise of the medical profession in Kansas. The progress of Blue Shield is reflected in the following major activities.

Improved New Contract: During 1951 Blue Shield changed its contract with members by adding several new services and improving the payments for various procedures. Payments for medical care in the hospital were increased, a new emergency accident provision was included, the diagnostic accident x-ray allowance was increased and various other additions to the plan were made. An important step forward was the increase in service income limits to $2,000 for single persons and $3,000 for families. Judging from the rising tempo of new enrollment these changes have been accepted favorably by the public.

Enrollment and Public Relations: During 1951 Blue Shield membership increased from 241,613 to 264,885 members. This is a net increase of 23,272 members.

Because of a rather large increase in Blue Cross membership dues, which made the combined Blue Cross-Blue Shield package about 30 per cent higher in cost, there were some rather significant losses in members which had to be offset by the new enrollment. However, the new enrollment trends in Blue Shield as of March, 1952, indicate that these cancellations are being offset and the net membership in Blue Shield is climbing. Public understanding of Blue Shield continues to improve to the extent that there is widespread evidence that the people of Kansas recognize the need for this high standard medical care prepayment program.

Financial Experience: Blue Shield's financial experience during 1951 was the best in the plan's history.

		Per Cent
Total Income for 1951	$2,777,204.76	100.00
Total Payments to Physicians	2,123,912.55	76.47
Cost of Administration	308,189.12	11.10
Net addition to reserve	345,103.09	12.43
Total Reserve as of December 31, 1951	590,101.38	

Physician Relations: Through the continued efforts of the Blue Shield Relations Committee of the

ACCIDENT • HOSPITAL • SICKNESS

INSURANCE

FOR PHYSICIANS, SURGEONS, DENTISTS EXCLUSIVELY

ALL PREMIUMS COME FROM — PHYSICIANS SURGEONS DENTISTS — ALL CLAIMS GO TO

$5,000 accidental death	$8.00
$25.00 weekly indemnity, accident and sickness	Quarterly
$10,000.00 accidental death	$16.00
$50.00 weekly indemnity, accident and sickness	Quarterly
$15,000.00 accidental death	$24.00
$75.00 weekly indemnity, accident and sickness	Quarterly
$20,000.00 accidental death	$32.00
$100.00 weekly indemnity, accident and sickness	Quarterly

COST HAS NEVER EXCEEDED AMOUNTS SHOWN.
ALSO HOSPITAL POLICIES FOR MEMBERS' WIVES AND CHILDREN AT SMALL ADDITIONAL COST

85c out of each $1.00 gross income used for members' benefits

$4,000,000.00 Invested Assets — $18,300,000.00 Paid for Claims

$200,000.00 deposited with State of Nebraska for protection of our members

Disability need not be incurred in line of duty—benefits from the beginning day of disability

PHYSICIANS CASUALTY ASSOCIATION
PHYSICIANS HEALTH ASSOCIATION
50 Years under the same management
400 FIRST NATIONAL BANK BLDG., OMAHA 2, NEBRASKA

AMERICAN BOARD EXAMINATIONS

Anesthesiology. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15, Conn. Various locations, July 18.

Dermatology and Syphilology. Sec., Dr. George M. Lewis, 66 East 66th St., New York 21. Oral, Chicago, May, 1952.

Internal Medicine. Sec., Dr. William A. Werrell, 1 West Main Street, Madison 3. Written, various centers and overseas, Oct. 20; closing date for applications, May 1. Oral, Cleveland, Apr. 17-19; Chicago, June 5-7; San Francisco, in fall.

Obstetrics and Gynecology. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6. Oral, Chicago, June 9-13, 1952.

Ophthalmology. Sec. Dr. Ewin B. Dunphy, 56 Ivie Road, Cape Cortage, Maine. Oral, Oct. 6-10, Chicago. Practical, Philadelphia, May 29-June 3; Chicago, Oct. 6-10; New York City, June 6-10.

Otolaryngology. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City. Oral, Chicago, Oct. 6-10.

Pathology. Sec., Dr. Robert A. Moore, 1402 S. Grand Blvd., St. Louis.

Pediatrics. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa. Oral, Washington, D. C., May 2-4; San Francisco, late June; Chicago and Boston, in fall.

Physical Medicine and Rehabilitation. Sec., Dr. Robert L. Bennett, Georgia Warm Springs Foundation, Warm Springs, Ga. Parts I and II, Chicago, June 8-9.

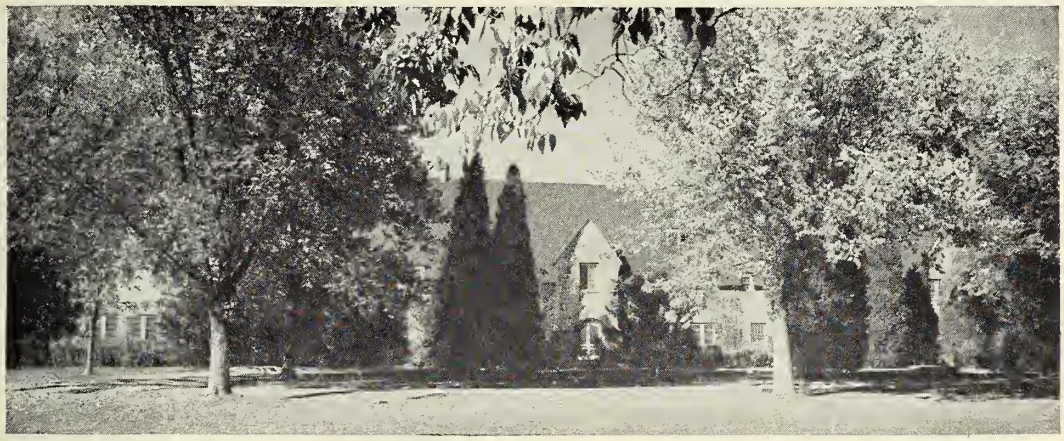
Preventive Medicine and Public Health. Sec. Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore. Written, Apr. 18, Berkeley, Calif., Minneapolis, New Orleans, Baltimore.

Psychiatry and Neurology. Sec., Dr. David A. Boyd, Jr., 102-110 Second Ave., S.W., Rochester, Minn. New York City, Dec. 15-16; closing date for applications, Sept. 15.

Radiology. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

Surgery. Sec., Dr. J. Stewart Rodman, 225 South 15th St., Philadelphia. Written, various centers, Oct., 1952.

Urology. Sec., Dr. Harry Culver, 30 Westwood Road, Minneapolis 16.



Woodcroft Hospital--Pueblo, Colorado

A private hospital for the scientific treatment of neuro-psychiatric disorders, including alcoholism and drug addiction. Beautiful landscaping and home-like surroundings afford a restful atmosphere. Accommodations vary from single rooms with or without bath to rooms en suite, allowing for segregation of guests.

Detailed information furnished on request.

Karl J. Waggener, M.D.

Kansas Medical Society, the mutual understanding between Blue Shield and its participating physicians continues to improve. The most significant activity in the physician relations program was the Blue Cross-Blue Shield economy plan. After receiving approval by the Blue Shield Relations Committee for presenting the economy plan to the medical profession, the Blue Cross-Blue Shield staff has discussed the plan with nearly 1,000 physicians. The reception of the economy plan by the profession has been excellent and there is every reason to believe that both Blue Cross and Blue Shield will win the cooperation of the doctors of Kansas in this effort to eliminate any waste in the use of service. After all, the objective is a good one, namely, that of making prepayment of medical and hospital costs so attractive to the public that people will respond in increasing numbers to this modern method of paying these costs.

Fee Committee: A report by the chairman of the Fee Committee of the Kansas Medical Society is to be found elsewhere in this issue. However, it would be remiss not to express the appreciation of the Blue Shield Board for the continuing efforts of this vital committee toward bringing about an equitable schedule of payments.

Medical Assistants: During the year members of the Blue Shield staff met with over 80 medical assistants. These meetings were held not only to present information on Blue Shield but also to aid the Kansas Medical Assistants' Society in forming new chapters in those areas where they are not now organized. It is expected that our program of meetings with medical assistants will be greatly expanded during the coming year.

National Picture: Kansas Blue Shield is a part of a much broader national program for prepayment of medical care. Considerable progress is being made by all Blue Shield plans throughout the country and particularly in the area of better coordination of these plans. As of September 30, Blue Shield nationally had enrolled 20,279,725 members. This outstanding public acceptance will continue to be a bulwark against those who would put medicine under the control of the government.

Respectfully submitted,
DWIGHT LAWSON, M.D., *President*

ANNOUNCEMENTS

July 9 and 10, 1952, have been announced as the dates for the Sixth Annual Rocky Mountain Cancer Conference to be held in Denver, Colorado, with headquarters at the Shirley-Savoy Hotel. This two-day meeting annually featuring eight outstanding national speakers on new developments in diagnosis and treatment of malignancies is jointly sponsored by the Colorado State Medical Society and the Colorado Division of the American Cancer Society. In addition to the scientific program, the evening of Wednesday, July 9, will be given over to a banquet and special entertainment of a non-scientific nature. There is no registration fee for the conference, which annually attracts a registration of over 700 physicians from the midwest and the Rocky Mountain states. The complete program will be announced not later than June 1.

* * *

The annual meeting of the American Association of the History of Medicine will be held at the University of Kansas School of Medicine and Medical Center, May 1-3. The association has never before met farther west than Cleveland, Ohio, and Lexington, Kentucky.

During this meeting the annual Kansas University Logan Clendening lectureship will be presented by Dr. George Sarton, professor of the history of science at Harvard University and author of many books and articles on the history of medicine and science.

Dr. Ralph H. Major, professor of medicine and chairman of the department of the history of medicine at the University of Kansas School of Medicine, is president of the American Association of the History of Medicine.

The program will begin at 9:00 on Thursday morning, May 1, at Lindley Hall on the University of Kansas campus at Lawrence. The Friday sessions will be held on the fifth floor of the Clinic Building of the University of Kansas Medical Center, Kansas City, with a banquet in the evening at the Town House Hotel. The banquet address will be given by Dr. Franklin D. Murphy, chancellor of the University of Kansas.

Physicians are cordially invited to attend any or all sessions of the meeting.

* * *

The Michael Reese Hospital Postgraduate School, 29th Street and Ellis Avenue, Chicago 16, Illinois, announces a series of courses that will be held during April and May, 1952. Complete information may be obtained from the dean, Dr. Samuel Soskin. A one-week course in clinical dermatology will be held from April 20 to April 25. A course on "Diseases of the Endocrines—Physiology and Diagnostic Methods" will be scheduled from April 28 to May 9. "Recent Advances in Internal Medicine " will be the subject of a course from May 12 to May 24. The last course, "Recent Advances in Pediatrics—Diagnostic and Therapeutic Measures," will be offered from May 26 to May 31.

THE LATTIMORE-FINK LABORATORIES

Topeka El Dorado
Kansas

J. L. Lattimore, A.B., M.D., Pathologist
A. A. Fink, A.B., M.D., Pathologist
H. C. Ebendorf, M.T. Serologist
A. C. Keith, B.S., Chemist
L. W. Hull, A.B., Bacteriologist
Walter Norris, A.B., Chemist

Anatomical and Clinical Pathology

Containers Furnished Upon Request

Medical and Surgical Supplies for Doctors of Medicine and Hospitals.

Munns Medical Supply Co.
512 Kansas Ave.
Topeka, Kansas

THE MEDICAL PROTECTIVE COMPANY
FORT WAYNE, INDIANA

PROFESSIONAL PROTECTION EXCLUSIVELY SINCE 1899

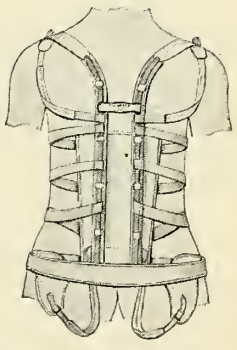
specialized service assures *"know-how"*

TOPEKA Office:
J. E. McCurdy, Rep.,
1035 Randolph Avenue,
Telephone 2-3027

Deformity Appliances of Quality

Orthopedic and Surgical Appliances
Artificial Limbs

Trusses
Abdominal Supports
Elastic Hosiery
Foot Supports
Surgical Corsets



Taylor Back Brace

Made to Order
In Our Own Factory

P. W. HANICKE MFG. CO.
1009 McGee St. Victor 4750
KANSAS CITY, MO.

CLASSIFIED ADVERTISEMENTS

WANTED—Laboratory technician for 25-bed hospital. Salary $3,300 and full maintenance. Write the Journal 4-52.

WANTED—Young Kansas Draft exempt active general practitioner who has had sufficient training to do all minor and emergency surgery to permanently locate. City and surrounding industrial population 1,000—closest opposition 30 miles. This location is open as a result of the young physician recently being called to service who grossed $12,000 per year. A hospital district surrounding this city has been permanently organized and a new modern eight-bed hospital will be constructed here in the near future. Write the Journal 2-52.

FOR SALE—Will sacrifice. Entire office equipment. Town of 8,000 in southern Kansas location. Two good hospitals. Reason for selling, retiring. Write the Journal 3 52.

FREE SAMPLE

DR. _____

ADDRESS _____

CITY _____ ZONE ____

STATE _____



AR-EX MULTIBASE

New Universal Ointment Vehicle Compatible with ALL Topical Medicaments

Prescribe ointments of cosmetic elegance — made with AR-EX Multibase. Applies readily, even to hairy areas, rinses off with plain water. No screening action, making all medicaments available.

℞ AR-EX Cosmetics Inc. Pharmaceutical Division

AR-EX COSMETICS, INC. 1036 W. VAN BUREN ST. CHICAGO 7, ILL.

AMERICA'S AUTHENTIC HEALTH MAGAZINE

today's health

AMERICAN MEDICAL ASSOCIATION



BUILDS FAITH IN YOU AND YOUR WORK

IN YOUR WAITING ROOM

3 YEARS $6.50 2 YEARS $5.00

1 YEAR $3.00

It's Convenient to Buy Kanox

THERAPEUTIC OXYGEN AND ANESTHETIC GASES

Oxygen Therapy
Regulators and Equipment
Repair Service for
Regulators, Flowmeters
and Humidifiers



Nitrous Oxide
Ethylene
Carbon Dioxide
Helium
Oxygen
Cyclopropane

KANSAS OXYGEN, Inc.

Phone 6392 HUTCHINSON, KANSAS Box 551

The Neurological Hospital, 2625 West Paseo, Kansas City, Missouri, a voluntary hospital providing the care and treatment of nervous and mental patients, and associate conditions.

Merck & Mallinckrodt ® Reagents
KLINE TEST ANTIGEN (LAMOTTE)
PYREX LABORATORY GLASS WARE
PIPETTES AND BURETTES
PRECISION EQUIPMENT
HARTMAN-LEDDON SPECIALTIES
LABORATORY SUPPLIES & EQUIPMENT
KANSAS OWNED
Southwest Scientific Corporation
122 S. St. Francis Wichita 2, Kansas

Nationally advertised Surgical Supplies and Equipment have been placed at Topeka, Joplin, Kansas City and St. Joseph for your convenience by —

GOETZE NIEMER CO.

Management by Dr. W. F. Goetze, a member of the American Medical Association, assures intelligent servicing of your orders

TROWBRIDGE TRAINING SCHOOL
Established 1917

For unusual children. Medical and psychiatric supervision. Experienced teachers. Individual special training. Home atmosphere. Enrollment limited. Approved and registered by the Council of Medical Education and Hospitals of the A.M.A. Pamphlet.

E. H. TROWBRIDGE, SR., M.D.
1905 BRYANT BUILDING KANSAS CITY 6, MO.

OVER 31 YEARS OF EXPERIENCE

COLLECTING DORMANT ACCOUNTS FOR HOSPITALS AND PHYSICIANS

ALL FUNDS PAID DIRECT TO OUR CLIENT

We prepare and keep all the records—furnish the supplies—do all detail work—pay part of routine postage. The plan is successful and altogether different from any other. Efficient organization and field men.

READING & SMITH SERVICE BUREAU
1004 Commerce Trust Bldg. Kansas City, 6, Mo.

DR. CROSON MEMORIAL STUDENT LOAN FUND

Kansas Medical Society
512 New England Building
Topeka, Kansas

The enclosed check is a contribution to the Dr. Croson Memorial Student Loan Fund. Please accept this amount in memory of Dr. Franklin Roy Croson, who was instrumental in setting up this fund to aid needy students at the University of Kansas School of Medicine.

Name Amount.....

Street Address

City and State.....

Cook County Graduate School of Medicine
ANNOUNCES CONTINUOUS COURSES

SURGERY—Intensive Course in Surgical Technic, Two Weeks, starting April 14, April 28, May 12.
Surgical Technic, Surgical Anatomy & Clinical Surgery, Four Weeks, starting June 2, September 8.
Surgical Anatomy & Clinical Surgery, Two Weeks, starting June 16, September 22.
Surgery of Colon & Rectum, One Week, starting April 7, May 12.
Personal Course in General Surgery, Two Weeks, Starting April 14.
Gallbladder Surgery, Ten Hours, starting April 21.
Basic Principles in General Surgery, Two Weeks, starting September 8.
General Surgery, One Week, starting May 12.
Breast & Thyroid Surgery, One Week, starting June 23.
Esophageal Surgery, One Week, starting June 23.
Thoracic Surgery, One Week, starting June 2.
Fractures & Traumatic Surgery, Two Weeks, starting June 16.
GYNECOLOGY—Intensive Course, Two Weeks, starting April 21, June 16.
Vaginal Approach to Pelvic Surgery, One Week, starting May 5, June 9.
OBSTETRICS—Intensive Course, Two Weeks, starting April 7, June 2.
PEDIATRICS — Intensive Course, Two Weeks, starting April 7.
Informal Clinical Course every two weeks.
Cerebral Palsy, Two Weeks, starting July 7.
MEDICINE—Intensive General Course, Two Weeks, starting May 5.
Electrocardiography & Heart Disease, Two Weeks, starting July 14.
Gastroenterology, Two Weeks, starting May 19.
Hematology, One Week, starting June 16.
Gastroscopy & Gastroenterology, One Week Advanced Course, June 23.
UROLOGY—Intensive Course, Two weeks, starting April 28.
Ten Day Practical Course in Cystoscopy starting May 12, May 26.
DERMATOLOGY—Intensive Course, Two Weeks, starting May 5.

TEACHING FACULTY—ATTENDING STAFF OF COOK COUNTY HOSPITAL
Address: Registrar, 707 So. Wood St., Chicago 12, Ill.



THE BROWN SCHOOL

Four distinct units. Tiny Tots through the Teens. Ranch for older boys. Special attention given to educational and emotional difficulties. Speech, Music, Arts and Crafts. A staff of 12 teachers. Full time Psychologist. Under the daily supervision of a Certified Psychiatrist. Registered Nurses. Private swimming pool, fireproof building. View book. Approved by State Division of Special Education.

BERT P. BROWN, DIRECTOR
PAUL L. WHITE, M.D., F.A.P.A.,
MEDICAL DIRECTOR
P. O. Box 4008, Austin, Texas

Index to Advertisers

Abbott Laboratories 205
Ames Company, Inc. X
Ar-Ex Cosmetics, Inc. 214
Ayerst, McKenna and Harrison, Ltd. XVIII
Brown School 216
Coca-Cola Company 209
Continental Casualty Company 197
Cook County Graduate School of Medicine 216
Duncan Laboratories 199
Goetze Niemer Company 215
Hanicke, P. W., Manufacturing Company 213
Isle, W. E., Company 216
Kansas Oxygen, Inc. 214
Lattimore-Fink Laboratories 213
Lederle Laboratories, Inc. 203
Lilly, Eli, and Company Facing XVIII
Major Clinic 209
Mead Johnson and Company Back cover
Medical Protective Company 213
Merck and Company, Inc. XIII
Munns Medical Supply Company, Inc. 213
Neurological Hospital Association 215
Page Milk Company XII
Parke, Davis and Company Inside front cover and III
Pfizer, Charles, and Company, Inc. XIII and IX
Physicians Casualty Association 211
Producers Creamery Company 207
Ralph Sanitarium VII
Reading and Smith Service Bureau 215
Sandoz Pharmaceuticals, Inc. 207
Schering Corporation Inside back cover
Searle, G. D., and Company 195
Southwest Scientific Corporation 215
Squibb, E. R., and Sons XVI and XVII
Trowbridge Training School 215
United Insurance Company 201
Upjohn Company XV
Wander Company V
Winthrop-Stearns, Inc. XI
Woodcroft Hospital 211
Wyeth, Inc. XIV



CAMP TRADE MARK
Surgical Supports
COMPREHENSIVE STOCK FOR MEN AND WOMEN
EXPERT FITTERS To Serve Your Patients
THE W. E. ISLE CO.
ENTIRE SECOND FLOOR
1121 GRAND AVENUE
KANSAS CITY, MISSOURI
VICTOR 2350

THE JOURNAL
of the
KANSAS MEDICAL SOCIETY
Owned and Published by The Kansas Medical Society

Volume LIII MAY, 1952 No. 5

Gangrenous Intussusception

Herbert H. Hesser, M.D.,* Chester L. Young, M.D.,* and Frederic Speer, M.D.**

Kansas City, Kansas

There are few cases of recovery following intestinal resection for irreducible intussusception under the age of one year. The case reported was characterized by the unusual finding of a double intussusception with rapid progress to gangrene. Primary resection was successful.

P. P., a five and one-half month old female, was admitted to Providence Hospital, June 7, 1951. Presenting complaints were bloody stools and crying. She had been seen three days before admission because of vomiting and irritability. Temperature was 98.6 F. rectally. An upper respiratory infection with catarrhal otitis media was found. Penicillin was administered and repeated the following day. The day before admission the child presented no evidence of pain and seemed well. At 10:00 A.M. the day of admission, the child began to cry hard and vomited repeatedly. An enema was given and a bloody result was obtained. She was admitted to the hospital at 1:00 P.M.

Physical examination on admission to the hospital showed the temperature to be 99.6 F. rectally. The patient was well developed and well nourished. She was in no apparent distress except at intervals when she would draw up her legs and scream out in pain. No masses were palpable in the abdomen. Rectal examination yielded bloody, currant-jelly type stool on the examining finger.

A diagnosis of intussusception was made. A barium enema done for confirmation revealed small intestine gas suggestive of high grade obstruction and a filling defect in the cecum, the typical rosette deformity of intussusception. The patient was taken to surgery at 2:00 P.M., one hour after admission, and four hours after apparent onset of pain.

As a preparation for surgery 500 cc. of 2½ per cent glucose in normal saline had been started by hypodermoclysis. Drop ether was the anesthetic administered. The abdomen was opened through a lower right rectus incision by one of us (H. H. H.). The terminal ileum was found to have intussuscepted into the ascending colon as far as the hepatic flexure. This intussusception was easily reduced. At this stage it was found that the ileum had telescoped into itself, producing an ileo-ileal intussusception which could not be reduced. About three inches of lifeless bowel was involved in the intussusception. Resection with primary end-to-end anastomosis was decided on. A section of ileum measuring seven inches was resected. The internal layer of sutures was accomplished with 4-0 chromic catgut. This layer was reinforced externally by interrupted sutures of No. 50 spool cotton sutures. The wound was closed without drainage using 2-0 chromic catgut for all layers except the skin which was closed with No. 50 spool cotton.

Postoperative supportive therapy was given in the form of oxygen and intravenous fluids including blood, glucose, and saline. Penicillin was given intramuscularly in daily doses of 150,000 units. Continuous gastric suction was maintained for the first three postoperative days. On the second postoperative day the patient began to have loose, brown stools with the passage of considerable flatus. The abdomen was soft and the general postoperative progress seemed to be satisfactory. The patient was tolerating a soft diet.

Early on the seventh postoperative day the patient vomited, breathing became rapid and labored, and marked abdominal distention developed. At this time the patient was seen by two of us (C. L. Y. and F. S.). Continuous gastric suction and penicillin were resumed. The following day fecal drainage occurred from the operative wound, and the patient had a large bowel movement. From this time on

*From the Surgical Service of Providence Hospital.

**From the Pediatric Service of Providence Hospital.

improvement was steady. The fecal fistula progressively closed, and the patient was dismissed from the hospital on July 5, 1951. She was examined at intervals for a period of six months and showed complete recovery.

Comment

Instances of recovery following resection for irreducible intussusception are relatively rare. Dowd[1] in 1913 reported a successful resection in a five-day-old infant. Clubbe[2] found but 19 survivals under the age of one year by 1921. Southam and Crawshaw[3] in 1921 reported two recoveries following resection. Perrin and Lindsay[4] in 1921 reviewed 400 cases treated at the London hospital and did not find a single example of survival after resection when the child was below the age of three years. According to Ladd and Gross[5] the mortality rate in babies under one year of age is 75 per cent or more. Of a large series of cases treated for insussusception, they report 43 resections with 10 recoveries, three of which were combined with anastomoses and seven of which had a double enterostomy (Mikulicz's procedure). Wangensteen[6] in 1942 reported a recovery following a stage resection in a four-months-old infant. He recorded two other cases of recovery. From Britain comes the report of Hindmarsh, Stewart, and Morrison[7] of two cases of stage resection and survival of infants, one eight months and the other five months of age. Fallis and Warren[8] report two cases of successful primary resection for irreducible intussusception in infants, one eight months and the other five months of age. More recently Tedesco[9] reports a case of recovery following resection for gangrenous intussusception.

A further study of intussusception brings up the following points for consideration:

A. The value of barium enema in the diagnosis and treatment of intussusception.

Barium enema may serve as an aid but is not essential for the diagnosis of intussusception. A negative barium enema does not necessarily rule out the condition and a positive x-ray may be in evidence in certain cases which are not intussusception.

The four cardinal symptoms of colic, vomiting, bloody mucous stools, and a palpable abdominal tumor almost confirm the diagnosis. Kirsner and Miller[10] in evaluating the criteria of intestinal invagination report that the most frequent signs of invagination are obstruction to the barium with a filling defect, mobility of the obstruction under manipulation, palpable mass, and the passage of barium between the intussusceptum and the intussuscepiens. Kirsner and Miller[10] mention the barium meal to aid in the diagnosis of the enteric variety which is not shown by the barium enema.

Barium enema may be dangerous for it may effect an apparent reduction and lead to unnecessary delay in the operative treatment.

B. The type of treatment.

The treatment of intussusception resolves itself into two types, non-operative and operative. Non-operative treatment does have its advocates. Hipsley[11, 12] has reported a consecutive series of 159 cases treated by rectal injection of saline solution with reduction in 60 per cent. Retan[13] advocates a trial of taxis and barium enema under fluoroscopic control when the patient is seen in the first 12 hours. Wangensteen[6] has tried that method and apparently does not advocate it as he advises opening the abdomen in every case to confirm complete reduction. In this case, found irreducible only four hours after the first known pain, any type of non-operative treatment might very well have been disastrous.

The operative treatment of intussusception is simple when reduction is easily accomplished at the operating table. A grave problem is presented to the surgeon when he is faced with an intussusception which cannot be reduced. The following procedures may be considered in the handling of this difficult situation.

1. Exteriorization of the bowel above the obstruction, leaving the intussusception in the abdomen.[11, 14]

2. The fecal stream may be shunted around the obstruction by lateral anastomosis, leaving the intussusception undisturbed.[5, 8, 11, 14, 15]

3. A resection may be made through an incision in the outer layer as in the Coffey or Jessetts operation.[8, 11, 16, 17]

4. A Mikulicz type of resection may be done.[6, 7]

5. A resection with primary anastomosis may be performed.[1, 6, 8, 18]

Leaving the intussusception in the abdomen as in exteriorizing the bowel above the obstruction, or shunting the fecal stream around the obstruction, may be a dangerous surgical procedure. The gangrenous intussusception may be a possible source of peritonitis or severe intestinal hemorrhage. Resection through an incision in the outer layer is a technically difficult procedure and may expose the patient to sepsis. Enterostomy or colostomy is usually not well tolerated in children because of electrolyte imbalance, rapid dehydration, wound infection, and difficulty in caring for the fistula.

Resection with primary anastomosis carries a high mortality rate, but the other alternatives above mentioned carry an equal, if not higher, rate. Ladd and Gross[5] have stated that the successful resections gathered from the literature were treated in the majority of cases by primary anastomosis of the intestine.

The above does not mean that resection with primary anastomosis should be advocated in all cases of irreducible gangrenous intussusception. Each case must be individualized and the best method chosen. A short circuit to relieve obstruction may be good judgment in a poor risk patient. In 1913 Dowd[1] advocated primary closed resection in all fairly good risk patients. This procedure, which is the most positive of all surgical treatments for strangulated intussusception, must be proved by a careful analysis of case reports of successes as well as failures.

Summary

1. A successful case of primary resection for irreducible gangrenous intussusception under the age of one year is reported. Rapid progress to gangrene and irreducibility was apparently due to the presence of a double intussusception.

2. The literature is reviewed and few of such recoveries are revealed.

3. The various methods of treatment, operative and non-operative, are evaluated.

References

1. Dowd, C. N. Resection of One-Third of the Colon for Irreducible Intussusception in an Infant Five Days Old. Ann. Surg., 57:713, 1913.
2. Clubbe, Sir C. P. B. Intussusception, 2nd ed., London, 1921.
3. Southam, A. H., and Crawshaw, C. H. Resection of Intestine for Acute Intussusception: Two Cases of Recovery. Brit. M. J., 1:266, 1921.
4. Ferrin, W. S., and Lindsay, E. C. Intussusception: A Monograph Based on 400 Cases. Brit. J. Surg., 9:46, 1921-22.
5. Ladd, W. E., and Gross, R. E. Abdominal Surgery in Infancy and Childhood, pp. 105-126. Philadelphia and London, 1941. W. B. Saunders Co.
6. Wangensteen, O. H. Intestinal Obstructions, 2nd ed. pp. 396-420. Springfield, Ill. Charles C. Thomas.
7. Hindmarsh, T. A., Stewart, A. W., and Morrison, B. Resection Operation for Gangrenous Intussusception in Infants. Brit. M. J., 2:382, 1945.
8. Fallis, L. S., and Warren, K. W. Irreducible Intussusception in Infants: Report of Two Successful Primary Resections. Surg., Gynec., and Obst., 81:384, 1945.
9. Tedesco, V. E. Irreducible Gangrenous Intussusception. Am. Journ. of Surg., 82:526, 1951.
10. Kirsner, J. B., and Miller, J. F. Roentgen Diagnosis of Intussusception. Radiology, 31:658, 1938.
11. Hipsley, P. L. Intussusception. Brit. M. J. 2:717, 1935.
12. Hipsley, P. L. The Treatment of Intussusception. Surgery, 1:825, 1937.
13. Retan, G. M. Non-operative Treatment of Intussusception. Am. J. Dis. Child. 33:765, 1927.
14. Montgomery, A. H., and Mussil, J. J. The Treatment of Irreducible Intussusception in Children, a Clinical and Experimental Study. Surg., Gynec. and Obst., 51:415, 1930.
15. Maingott, R. Abdominal Operations. Vol. II, pp. 1123-1124, New York. D. Appleton-Century Co., Inc.
16. Bailey, H. Emergency Surgery. 5th ed. pp. 293-304. Baltimore, 1944. Williams & Wilkins Co.
17. Elliott-Smith, A. Irreducible Intussusception: Report of Four Cases. Lancet, 2: 992, 1935.

The Low Salt Syndrome in Congestive Heart Failure*

Samuel Zelman, M.D.

Topeka, Kansas

The therapy of refractory congestive heart failure has been greatly improved in recent years by the recognition of the importance of salt restriction and the availability of the mercurial diuretics. We are all familiar now with the concept that retained salt holds its aliquot of additional extracellular water, with resultant increase of vascular and interstitial fluid volume of normal isotonicity. Water given alone is actually an effective diuretic, as ably demonstrated by Shemm[1] and others, resulting in renal excretion along with some salt in the form of a dilute urine, as a result of transiently increased blood volume, greater renal blood flow and increased glomerular filtration. Salt restriction results in decreased blood and interstitial fluid volume, though the normal kidney quickly responds to salt restriction by extremely effective sodium and chloride conservation. The passively congested kidney also conserves salt with great effectiveness, as has been recently demonstrated.[2] The effective use of salt restriction in congestive heart failure is therefore secondary in importance to the improved cardiac action achieved by digitalis. Its greatest value is in prevention of the increasing edema which occurs with salt feeding in the presence of impaired cardiac output.

In these conditions of salt restriction or salt retention in congestive heart failure, the body fluids remain isotonic, provided chronic nephritis does not coexist. That is, the patient suffers from edema rather than water or salt intoxication. In the presence of tubular damage such as exists in independent nephritis, salt and water may be excreted in such disproportion that these intoxications may occur. The kidney of chronic nephritis causes edema by failing to excrete surplus salt, but as a rule the body fluids remain isotonic because of added water intake by the thirsty patient. In so-called salt-losing nephritis,[3] however, salt may be excreted in excess with resulting dehydration and hypotonicity of body fluids. A salt hunger analagous to water thirst apparently does not occur in such patients.

A similar condition may be brought about in congestive heart failure with intact renal function, if, in the presence of restricted salt intake, salt excretion by the kidney is artificially stimulated by the use of mercurial diuretics. Whereas digitalization results in proportionately increased excretions of salt

*From the Medical Service, Winter Veterans Administration Hospital. Presented at the Kansas Heart Conference, Topeka, November 15, 1951.

and water, the diuresis produced by mercurials is primarily an effect on salt excretion, with water secondarily accompanying this loss to lesser degree.[4] This point is of the utmost importance, since the low salt syndrome is not seen in congestive failure as a result of digitalis and salt restriction alone, but only in the presence of pre-existent renal damage or with excessive use of mercurial diuretics.

The difference is due to the specific disorganization of renal tubular function which occurs in nephritis, or in the therapeutic interference imposed by mercury upon the normal tubular regulation of electrolyte balance. Digitalis does not interfere with tubular regulation, its diuresis being a consequence entirely of improved cardiac output. Pitts and his co-workers[5] have, in the past year, reported careful pharmacologic studies of the site of action of mercurial diuretics. Their evidence indicates that there occurs blocking of tubular reabsorption of chloride and, to a lesser extent, of sodium. During the height of diuresis, the chloride concentration in urine may actually exceed that of plasma. The effect is probably upon the distal tubule, where concentration and dilution are normally accomplished and salt conserved or excreted according to the needs of the body fluids. The proximal tubule, which normally absorbs two-thirds of the sodium in the glomerular filtrate, does so isotonically, and does not vary its absorption of salt except in response to variations in the total amount of glomerular filtrate. It is in the proximal tubule that greatly increased reabsorption of salt may occur in the presence of diminished glomerular flitration due to reduced vascular irrigation of the kidney, such as occurs with the reduced cardiac output of congestive heart failure. The overabsorption of salt in the proximal tubule is presumably a consequence of the prolonged contact of the filtrate with the tubular epithelium. Pitts and Duggan[6] demonstrated that a 25 per cent reduction in glomerular filtration rate may reduce excretion of salt and water by more than 90 per cent when high salt and water loads are imposed in the dog. Merrill[7] maintains that edema accumulates in patients with reduced cardiac reserve when filtration rate falls below 70 cc. per minute, or 60 per cent of normal.

The low salt syndrome, characterized by hypotonicity of body fluids, has been reported increasingly in recent years.[8] It may occur in the presence of persistent edema, though it is more commonly seen with dehydration. Its increasing incidence is due in part to its increasing recognition, but it is also being seen more frequently as a consequence of our increasingly improved therapeutics. Our salt restricted diets have become more severe. Originally recommended diets limiting salt to two grams per day are now limited sometimes to as little as 150 mgms. These low intakes are further reduced by the increasing use of cation exchanging resins which withhold sodium from absorption in the gastrointestinal tract. When, in addition, we resort to the repeated use of mercurial diuretics, we set the stage for the appearance of the low salt syndrome. Mercurial diuretics, formerly used at spaced intervals, and only in the presence of manifest edema failing to respond to digitalis, are now often used with daily regularity, as advocated by Gold,[9] are commonly used for the relief of latent edema to achieve a hypothetical "dry weight," and by some authors are used even before, or in place of, digitalis. In the light of the cardiorenal vascular dynamics of congestive heart failure previously discussed, this last practice appears particularly absurd, although the first two may represent good practice. The improved use of salt restriction and mercurial diuresis in the treatment of congestive heart failure has certainly resulted in better management of patients, lessened disability and probably greater longevity. I would not wish my remarks to be taken as disparaging these valuable measures. But as they are used more effectively, their potentialities for toxicity must be recognized.

The low salt syndrome should be suspected whenever a patient whose salt intake is restricted fails to respond with diuresis to the administration of a mercurial diuretic after having shown previously adequate responses. The low salt syndrome is not the only cause of such lack of response, which may be due to primary renal damage, to marked impairment of cardiac output, or to other electrolyte disturbances (Figure 1). Hypochloremic alkalosis[10]

	Low Salt Syndrome	Hypochloremic Alkalosis	Chloride Acidosis
Serum Sodium	low	normal	normal
Serum Chloride	low	low	high
Serum CO_2	low	high	low
Serum B.P.B	high	normal or high	high
Precipitation Factors	Salt restriction and Hg. diuresis	Hg. diuresis	Continuous ammon. chloride and/or Cation exchange resin
Treatment	5% Saline	Ammon. chloride	Sodium Lactate

Figure 1. Electrolyte disturbances seen in congestive heart failure as a result of current methods of treatment.

is more common under these circumstances than is the low salt syndrome, because the effect of mercurials is greater on chloride excretion than on sodium excretion. This condition is recognized by the low serum chloride and reciprocally high serum carbon dioxide values. It is corrected by the administration of chlorides, usually as ammonium chloride. On the other hand, if ammonium chloride has been administered continuously to congestive heart failure patients receiving mercurials, acidosis and azotemia may appear, as recently reported by

the St. Louis City Hospital group.[11] This condition is characterized by high serum chloride and low serum carbon dioxide, in contrast to the findings in hypochloremic alkalosis, and it is treated with sodium lactate or bicarbonate. It does not occur following intermittent administration of ammonium chloride. Cation exchange resins predispose to this condition of acidosis, because they substitute hydrogen or ammonium for sodium ions in the gastrointestinal tract. Potassium balance does not appear to be significantly disturbed in any of these conditions, according to studies currently reported.[12]

The low salt syndrome is characterized by low serum values for sodium, chloride and carbon dioxide, indicating hypotonicity of body fluids. Though rarer than hypochloremic alkalosis, it is more dangerous, and unless recognized and corrected early, usually results in a fatal outcome. Its clinical manifestations are those of water intoxication, though the patient may actually have a hypotonic dehydration resembling adrenocortical insufficiency. The concentration of serum proteins and hemoglobin are increased. The volume of urine is decreased, the rate of glomerular filtration falls and the nonprotein nitrogen of the blood rises. The cardiac output is strikingly decreased. This picture was produced in dogs by Darrow and Yannet[13] by electrolyte loss without change in body water. The animals looked sick, refused food and were weak. These authors demonstrated an increase in intracellular water, reducing the intracellular electrolyte concentration about two-thirds as much as the reduction in extracellular concentration. It is presumably this intracellular disturbance which results in death. The picture of medical shock occurs. Similar findings are reported by Elkinton and Winkler,[14] who produced the syndrome by intraperitoneal water injection followed by withdrawal four hours later. Saline infusions rapidly and completely restored the animals.[15] McCance[16] in London produced the low salt syndrome in himself and other volunteers by salt restriction, excessive sweating, and unlimited water intake, with similar symptoms and electrolyte disturbances, attributed by him primarily to diminished glomerular filtration. The symptoms as seen in patients are described by Schroeder,[17] and include drowsiness, weakness and lethargy, loss of appetite sometimes with thirst, nausea and occasional vomiting, occasionally abdominal or muscular cramps, and increasing edema if previously present. Massie[18] mentions in addition the occurrence of dizziness, confusion or frank psychosis, followed at times by convulsions and coma. The diagnosis may be suspected in the presence of such symptoms in the salt restricted patient who has been receiving mercurial diuretics and no longer responds with diuresis or who has developed oliguria with rising blood urea, but it should be confirmed by blood electrolyte studies. The mechanism by which hypotonicity of body fluids produces partial renal shutdown is not understood, but it is apparently not dependent on circulatory insufficiency, since arterial and venous pressures may be unchanged, although blood viscosity may increase. It may be due to the intracellular hydration described by Darrow and Yannet,[13] affecting the kidney cells as well as all other tissues.

Treatment of the low salt syndrome consists of early and adequate replacement of salt, as a hypertonic solution, since isotonic solutions serve merely to increase edema without relieving hypotonicity. A five per cent solution is usually used. The quantitative salt requirement may be calculated from the serum electrolyte figures, though restoration often occurs with less than the calculated quantities. The production of pulmonary edema, theoretically a hazard in the administration of fluids in congestive heart failure, does not seem to have occurred in the cases reported nor in our limited experience. Water intake must be limited if the patient manifests thirst, which is not usually the case. Restoration of normal serum electrolyte values results in return of normal renal function and of diuretic response to mercurials, provided irreversibility has not yet occurred.

CALCULATION OF SODIUM DEFICIT FROM BLOOD CHLORIDE AND CO_2 VALUES

(1) $$\underset{142}{\text{mEq. Na}} = \underset{103}{\text{Cl}} + \underset{25}{\text{HCO}_3} + \underset{14}{\text{Other anions}}$$

(2) $$\frac{\text{serum Cl mg.\%}}{355} = \frac{\text{serum Cl as NaCl mg.\%}}{585} = \text{mEq./L. Cl}$$

(3) $$0.42 \times [\text{CO}_2 \text{ vol.\%}] = \text{mEq./L. HCO}_3$$

(4) $$\text{Deficit mEq./L. Na} = \text{Deficit mEq./L. Cl} + \text{Deficit mEq./L. HCO}_3$$

(5) $$[0.7 \text{ Kg. Wt.}] \times [\text{Deficit mEq./L. Na}] = \text{Total deficit in mEq.}$$

(6) $$0.058 \times [\text{Total deficit in mEq.}] = \text{Total deficit in Gm. NaCl}$$

Figure 2

In the absence of laboratory determinations of blood sodium, the approximate sodium deficit may be calculated from the serum chloride and bicarbonate values, as indicated in Figure 2. In using this calculation, 70 per cent of the body weight is assumed to represent its water content, including intracellular water which must also be returned to isotonicity. In uremia of long standing, and in diabetic acidosis, the calculation by this means will overestimate the sodium deficit, because accumulation of organic acids or ketones in the serum replaces

chloride and bicarbonate from their combination with sodium, and that portion of the sodium combined with the organic acids or ketones will not be included in the calculation.[19]

In any case, it is safest to administer on any one day only half the calculated deficit, since many patients will restore normal values with less than the calculated amounts of salt. If the patient is unable to take salt by mouth, and the peripheral veins are collapsed, it is feasible to administer hypertonic saline by intrasternal infusion. This was done in the final days of life of the patient reported in this paper. Sternal blood clots so quickly as often to occlude the needle before the flow can be established; in this event, forcible administration through the needle of an initial syringeful of fluid will clear the needle and allow uninterrupted continuation of a rapid flow.

The following case history is an example of the low salt syndrome and its management in the presence of severe refractory congestive heart failure, with initial response to salt replacement but eventual fatal issue:

This obese negro male was discovered to have asymptomatic hypertension in 1946, at the age of 26. Weakness and ankle edema appeared in October, 1948, at which time his blood pressure was found to be 236/150. He refused hospitalization but accepted a 1200 calorie diet low in protein and salt, and was given ammonium chloride and digoxin at the University of Kansas Medical Center. This regime relieved his symptoms and dropped his blood pressure to 190/130. In March, 1949, frontal and occipital headaches appeared. The Kempner rice diet was then prescribed and maintained faithfully for six months, the patient losing 40 pounds in weight and experiencing considerable relief. Left precordial pain, unrelated to exertion and relieved by belching, appeared in October. The patient's apprehension about his heart motivated his admission to Winter Hospital in January, 1950.

On examination, he was markedly obese and of hypersthenic physique. Blood pressure was 230/150 in both arms. Ophthalmoscopic examination revealed only moderate arteriolar spasm. The apical cardiac impulse was localized to the left of the midclavicular line in the sixth interspace. The liver was palpable two cm. below the costal margin, and there was slight pitting ankle edema. Laboratory studies were within normal limits, and the urine concentration was 1.024, with no albuminuria or casts. Fluoroscopically, the heart was seen to be in transverse position, with moderate elongation of the left ventricular outflow and inflow tracts and slight but definite left auricular enlargement. An electrocardiogram showed left ventricular hypertrophy with delayed intraventricular conduction and electrical pulsus alternans. Amytal sedation produced little change in diastolic pressure. Psychiatric study revealed considerable chronic suppressed anger concerning his race, his work and his wife, with a marked compulsive trait.

In view of the severe hypertension with early congestive failure, in a young patient with good eyegrounds and renal function, the various radical therapies were considered. The patient did not desire sympathectomy for fear of loss of employability, and promised to adhere to a low calorie rice diet for six additional months, at which time the desirability of sympathectomy was to be reevaluated. He was discharged taking digoxin, phenobarbital and aminophyllin.

The patient was again admitted June 7, 1951, one and one-half years later, with complaints of severe dyspnea and ankle edema for two and one-half months and nocturnal paroxysmal dyspnea for the past one and one-half months. He had maintained the rice diet, and had been taking 0.1 mg. digitoxin daily. He had lost about 35 pounds in the past year, but still weighed 190 at a height of five feet seven and one-half inches.

On examination, he was dyspneic at rest, with congested neck veins. Ophthalmoscopic examination revealed arteriolar narrowing with marked venous compression, and one small area of exudation. Crepitation was present at both lung bases. The blood pressure was 240/160 in both arms, with

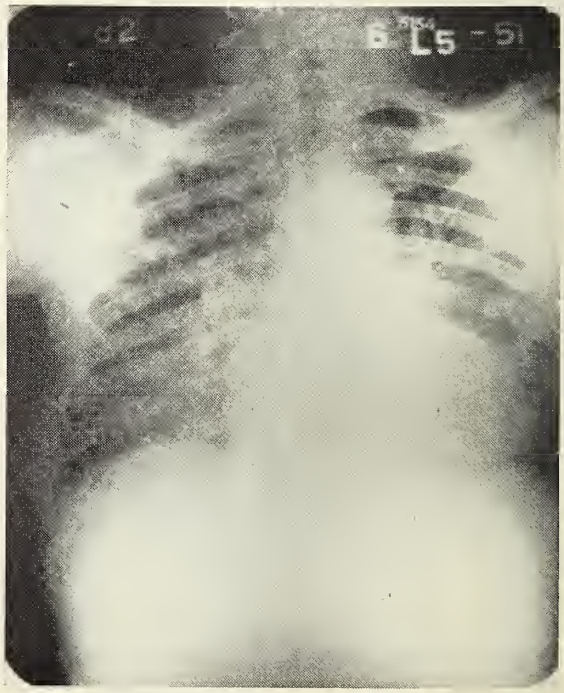


Figure 3. Chest x-ray of patient J. G. at time of final hospital admission.

pulsus alternans in the upper 10 mm., and the systolic pressure was 260 in both legs. The heart was large, and the pulse regular at a rate of 94. The aortic second sound was accentuated. The liver was palpable five cm. below the costal margin, and was firm, smooth and tender. Edema of the legs was moderately severe.

The urine showed three plus albumin persistently. Blood urea nitrogen was 18 and 16 mg. per cent on two determinations. Chest x-rays revealed greater enlargement of the heart than previously, and congested lung fields (Figure 3). The arm to tongue circulation time was 50 seconds.

Except for transient initial improvement, the patient's congestive heart failure proved refractory to therapy, which consisted of maximal dosage of digitoxin, ammonium chloride, mercurial diuretics, low salt intake limited to 1.0 gram of sodium daily, and cation exchange resin. Thrombosed leg veins could not be identified in the increasingly edematous legs, but edema of the left arm developed three weeks before death and was attributed to axillary vein thrombosis. During the terminal week the patient exhibited numerous attacks of chest pain, cough and bloody sputum, attributed to recurrent pulmonary emboli. Peripheral circulatory failure, gallop rhythm, and Cheyne-Stokes respiration existed during the final four days. The blood urea nitrogen rose progressively as circulatory failure developed. The blood pressure never varied, even during the terminal peripheral circulatory collapse. During the final two and one-half weeks, the patient was moderately febrile. Penicillin was administered continuously during the final four weeks, as prophylaxis against bronchopneumonia. Four plus albuminuria and hyaline and granular casts were present consistently during the last five weeks. Death occurred July 21, on the 62nd hospital day. Food and fluid were ingested fairly well until the end.

Postmortem examination was performed by Dr. Alfred Plaut. Autopsy diagnoses were: (1) Cor bovinum; calcification in myocardium; massive thrombosis in right atrium and left ventricle; small thrombosis in left atrium; (2) Large hemorrhagic infarcts in lower lobes of both lungs; small infarcts in other portions of lungs; (3) Infarct in left kidney; (4) Thrombosis of left subclavian vein with severe edema of left arm; edema of legs; (5) Hemorrhage in trachea and colon; (6) Stasis in liver and spleen; fatty change in liver; (7) Duodenal ulcer; blood in stomach and intestine; (8) Edema of brain; (9) Miliaria.

Figure 4 charts the low salt syndrome and its management in this case. After a month of salt restriction, cation exchange resin, repeated mercurial diuretics, and digitoxin in the amount of 0.4

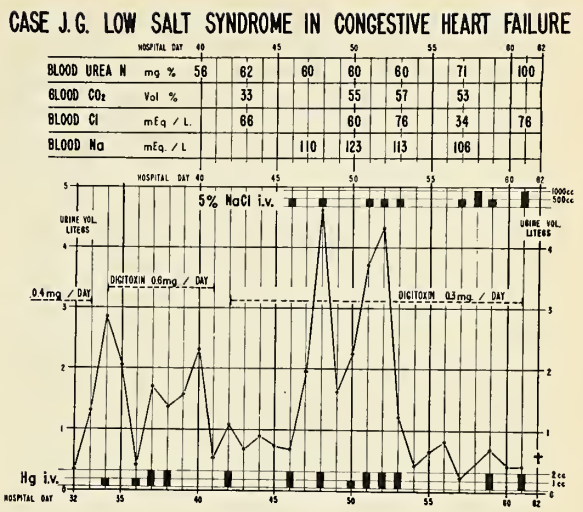


Figure 4

mgm. daily, the patient had become increasingly edematous and dyspneic, with diminishing urine output. The dosage of digitoxin was increased to 0.6 mgm. daily for a period of eight days, with moderate increase in diuresis. Digitalis toxicity did not develop on this dosage, probably because the edematous gastro-intestinal tract failed to absorb all of the administered oral dose. Nevertheless, because of fear of toxicity, and because the response did not appear impressive, the digitoxin dosage was then reduced to 0.3 mgm. daily. At about this time, on the 40th hospital day, the blood urea was found to have risen from its initially normal figures of 18 and 16 mgm. per cent to 58 mgm. per cent. Electrolyte imbalance was suspected, and verified by subsequent determinations revealing low serum chloride, bicarbonate and sodium. On the 47th hospital day, blood sodium reached a low of 110 mEq./L. and the urea nitrogen had risen to 80 mgm. per cent. Salt replacement therapy resulted in excellent diuretic response, as shown, with concomitant rise in blood sodium, chloride and bicarbonate to more nearly normal figures, though still low, and a drop in blood urea nitrogen to 60 mgm. per cent. Oral potassium intake was prescribed at this time, as an additional precaution against potassium deficit. Mercurial diuresis was continued, which was, perhaps, inadvisable, since subsequent figures show that hypochloremia was induced by the mercurial chloruresis. From this experience, better therapy would seem to be correction of the electrolyte imbalance before resorting again to mercurial diuresis. The desperate state of the patient had prompted us to attempt the combined therapy. After six days of diuretic response to salt replacement, the patient failed to show further response, developed further fall in blood sodium, chloride and bicarbonate, with rise in urea nitrogen to 100 mgm. per cent and died

after eight days of oliguria. A final determination of blood chloride on the day before death revealed that massive replacement of salt had brought about a marked rise toward normal of the chloride level, and presumably of the sodium as well, though this was not determined. Nevertheless, the patient was now irreversibly unresponsive, due presumably to his shock-like circulatory state, though intracellular edema may have been a factor. The patient had received a total of 275 Gm. of salt in 16 days, a remarkable amount. His massive edema was not discernably increased by this treatment, but daily weights during this period were not determined because of the patient's weakness.

Summary

The low salt syndrome is discussed and differentiated from other electrolyte imbalances which occur in congestive heart failure as a result of current methods of treatment. A case example of the low salt syndrome in congestive heart failure illustrates the diagnosis and management.

References

1. Schemm, F. R.: Certain Clinical Aspects of the Application of Water Balance Principles to Heart and Kidney Disease, Ann. Int. Med. 30:92-99, 1949.

2. Blake, W. D., Wegria, R., Keating, R. P., and Ward, H. P.: Effect of Increased Renal Venous Pressure on Renal Function, Am. J. Physiol. 157:1, 1949.

3. Thorn, G. W., Koepf, G. F., and Clinton, M., Jr.: Renal Failure Simulating Adrenocortical Insufficiency, New England J. Med. 231:76-85, 1944.

4. Schroeder, H. A.: Studies on Congestive Circulatory Failure. IV. The Effect of Various Diuretics on the Excretion of Water and Chlorides, Circulation 4:87-99, July, 1951.

5. (a) Duggan, J. J., and Pitts, R. F.: Studies on Diuretics. I. The Site of Action of Mercurial Diuretics, J. Clin. Inv. 29:365-371, 1950.

(b) Pitts, R. F., and Duggan, J. J.: Studies on Diuretics. II. The Relationship between Glomerular Filtration Rate, Proximal Tubular Absorption of Sodium and Diuretic Efficacy of Mercurials, J. Clin. Inv. 29:372-379, 1950.

(c) Pitts, R. F., and Sartorius, O. W.: Mechanisms of Action and Therapeutic Use of Diuretics, Pharmacological Reviews 1:161-226, 1950, Supplement to J. Pharm. and Exp. Therap. 98: April, 1950.

6. Reference 5 (b).

7. Merrill, A. J., and Cargill, W. H.: The Effect of Exercise on the Renal Plasma Flow and Filtration Rate of Normal and Cardiac Subjects, J. Clin. Inv. 27:272-277, 1948.

8. (a) Jaffe, H. L., Master, A. M., and Dorrance, W.: The Salt Depletion Syndrome Following Mercurial Diuresis in Elderly Persons, Am. J. Med. Sci. 220:60-65, 1950.

(b) Macguire, W. B.: Risk of Uremia due to Sodium Depletion, J.A.M.A. 177-178, 1948.

(c) Marriott, H. L.: Water and Salt Depletion, Thomas, 1950.

(d) Relman, A. S., and Schwartz, W. B.: The Recognition and Management of Sodium Depletion, Med. Clin. N. A. 1533, September, 1951.

(e) Schroeder, H. A.: Renal Failure Associated with Low Extracellular Sodium Chloride, J.A.M.A. 141:117-124, 1949.

(f) Scloff, L. A., and Zatuchni, J.: Syndrome of Salt Depletion Induced by a Regimen of Sodium Restriction and Sodium Diuresis, J.A.M.A. 139:1136-1139, 1949.

9. Gold, H.: Pharmacologic Basis of Cardiac Therapy, J.A.M.A. 132:547-554, 1946.

10. (a) Schwartz, W. B., and Wallace, W. M.: Electrolyte Equilibrium during Mercurial Diuresis, J. Clin. Inv. 30:1089-1104, October, 1951.

(b) Squires, R. D., Singer, R. B., Moffitt, G. R., Jr., and Elkinton, J. R.: The Distribution of Body Fluids in Congestive Heart Failure. II. Abnormalities in Serum Electrolyte Concentration and in Acid-Base Equilibrium, Circulation 4:697-705, November, 1951.

(c) Stock, R. J., Mudge, G. H., and Nurnberg, M. J.: Congestive Heart Failure. Variations in Electrolyte Metabolism with Salt Restriction and Mercurial Diuretics, Circulation 4:54-69, July, 1951.

11. Bergner, G. E., Hutchinson, J. H., Koehler, J. W., and Czebrinski, E. L.: Metabolic Problems Arising in the Management of Congestive Heart Failure, A.M.A. Arch. Int. Med. 88:387-394, September, 1951.

12. (a) Reference 11.

(b) Citron, D., Bercu, B., Lemmer, R., and Massie, E.: Congestive Heart Failure and Hyponatremia; Untoward Effects of Mercurial Diuresis, Ann. Int. Med. 34:872-880, April, 1951.

(c) Fox, C. L., Jr., Friedberg, C. K., and White, A. G.: Electrolyte Abnormalities in Chronic Congestive Heart Failure; Effects of Administration of Potassium and Sodium Salts, J. Clin. Inv. 28:781-782, 1949.

(d) Reference 10 (a).

(e) Reference 10 (b).

(f) Reference 10 (c).

13. Darrow, D. C., and Yannet, H.: The Changes in Distribution of Body Water Accompanying Increase and Decrease in Extracellular Electrolyte, J. Clin. Inv. 14:266-275, 1935.

14. (a) Elkinton, J. R., Danowski, T. S., and Winkler, A. W.: Hemodynamic Changes in Salt Depletion and in Dehydration, J. Clin. Inv. 25:120-129, 1946.

(b) Elkinton, J. R., and Winkler, A. W.: Transfers of Intracellular Potassium in Experimental Dehydration, J. Clin. Inv. 23:93-101, 1944.

15. Danowski, T. S., Winkler, A. W., and Elkinton, J. R.: The Treatment of Shock Due to Salt Depletion; Comparison of the Hemodynamic Effects of Isotonic Saline, of Hypertonic Saline, and of Isotonic Glucose Solutions, J. Clin. Inv. 25:130-138, 1946.

16. (a) McCance, R. A.: Medical Problems in Mineral Metabolism. III. Experimental Human Salt Deficiency, Lancet 230:823-830, Vol. 1, 1936.

(b) McCance, R. A., and Widdowson, E. M.: The Secretion of Urine in Man during Experimental Salt Deficiency, J. Physiol. 91:222-231, 1937.

17. Reference 8 (e).

18. Reference 12 (b).

19. Hald, P. M., Heinsen, A. J., and Peters, J. P.: The Estimation of Serum Sodium from Bicarbonate Plus Chloride, J. Clin. Inv. 26:983-990, 1947.

Official Proceedings of the 93rd annual meeting of the Kansas Medical Society, held in Kansas City, April 27-May 1, 1952, will be published in the June issue of the Journal.

Ophthalmoscopic Evaluation of the Hypertensive Patient*

Fred M. Wilson, M.D.**

Indianapolis, Indiana

The purpose of this paper is to discuss the optic fundus changes in vascular hypertension and to compare two of the best methods of evaluating these changes.

One method, (Wagener, Clay, Gipner),[1] is more detailed and exact, but more time-consuming; whereas, the other method, (Keith, Wagener, Barker),[2] is less exacting but more economical of time and is, therefore, sometimes more practical as a routine procedure.

The ophthalmoscopist must choose the method which is best suited to his requirements. If necessary, the two methods can be combined.

Introduction

As a result of hypertensive disease, pathologic failure may strike certain areas, particularly the eyes, brain, heart, and kidneys. One common denominator of the changes in these organs is diffuse arteriolar disease; in the eye, there is an unusual opportunity to observe the circulation at the arteriolar and precapillary levels, in the living patient, under a magnification of approximately 16 diameters. It must be remembered, however, that the eye is a relatively small area and that analogous changes elsewhere in the body are only implied and must depend for their final evaluation upon the correlation of complete clinical and laboratory data.

Although the examination of the optic fundi should not be over-emphasized in the total evaluation of the hypertensive patient, it should be pointed out that the ophthalmoscopic findings may have prognostic importance, at times serving as a sensitive (and occasionally the first) indicator of an acceleration in the course of the hypertensive disease.

In this regard, it seems paradoxical that the degree of severity of the changes in the fundus is not necessarily an indication of the height of the blood pressure, and this seems especially peculiar since elevation of the blood pressure is the only known common factor responsible for fundus changes in hypertensive states of various kinds. The evaluation of other influences, such as neurogenic and humoral factors, remains a matter for future determination.

The prognostic significance of the observed changes in the eye is subject to some variation, and it therefore holds more accurately for groups than for individual patients. Keith[2] and his associates, however, in an extensive and carefully controlled study with follow-ups lasting as long as nine years, showed a positive correlation between the ocular findings and the survival curves of patients who were divided into four groups according to various criteria of severity of hypertensive disease, the appearance of the eye grounds having a prominent place in this classification (see below).

Regardless of the means used to classify and grade the changes which occur in the eye as a result of hypertensive disease, it should be recognized that these methods are elaborations of the fundamental, eye-ground changes which may be classified under three general headings:

1. *Angiopathy*—changes in the vessels. Vascular alterations consist of local or generalized arteriolosclerosis and phlebosclerosis, and focal or spastic arteriolar constriction, and generalized attenuation or narrowing of the arterioles. It is presumed that arteriolar spasm and attenuation, beginning as a functional disturbance, may become fixed by the superimposition of a sclerotic process, probably requiring about four to six weeks for permanent changes to occur.

2. *Retinopathy*—changes in the retina. The retinal changes consist of extravasations and infarctions.

The extravasations consist of edema and hemorrhages, usually occurring superficially in the nerve-fiber layer. The terms "exudate" and "retinitis," sometimes used to describe these extravasations, are inapplicable, since there is no actual inflammatory response. Edema may be localized or diffuse. Localized edema (cotton-wool patches) may resolve incompletely, leaving sharply-defined, hyaline deposits (edema residues). When these, or fresher edema, occur near the macula, they tend to be radially disposed around the macula like the nerve fibers in this area (macular star). In some instances diffuse edema is distributed over large areas of the retina; when this is intense, it may result in serous detachment of the retina.

As a result of the individual or combined effects of vascular sclerosis, arteriolar attenuation and con-

*Presented at the University of Kansas Medical Center, February 19, 1952.

**From the Department of Ophthalmology, Indiana University Medical Center.

striction, intimal and elastic proliferation with obliterative endarteritis and endophlebitis, either hemorrhagic or ischemic infarction may occur in the retina.

Friedenwald,[3] applying the Hotchkiss staining technique to flat preparations of the retina, was able to demonstrate that many areas of cotton-wool patches found in hypertensive patients (but not exclusively, since these pathologic areas are observed also in other retinopathies), are cytoid-body lesions found near the terminal arterioles in such a position that they are presumably ischemic infarcts resulting from the occlusion of the arterial flow just distal to the bifurcation of the terminal arteriole. Since serial sections in many instances failed to reveal any arteriolar plug, it is inferred that some of these occlusions are constrictive.

These lesions will usually disappear in three or four weeks, healing by an ingrowth of new capillaries. Occasionally, due to advanced degrees of narrowing and/or sclerosis in the larger arterioles some of the main branches, or even the central retinal artery itself, may be occluded. Central vein thrombosis may occur, also, but tributary thrombosis is more common and less devastating, although venous thrombosis, wherever it occurs, produces multiple bleeding points into the nerve-fiber layer of the retina, and the fundus picture of an episode of this sort must be differentiated from a severe hypertensive retinopathy, since the venous thrombosis, while serious to the eye, may occur without the grave prognostic significance which accompanies a hypertensive retinopathy of similar, bold coloring.

3. *Neuropathy*—papilledema, edema of the optic disc. This is usually associated with retinopathy, and is then referred to as *neuroretinopathy.* The pathogenesis of this papilledema is not well understood but is always of grave significance, indicating a terminal stage of the disease. It is probably most often evidence of increased intracranial pressure accompanying hypertensive encephalopathy, or, in some cases, may represent an extension of a severe retinopathy. Edema of the disc occasionally occurs without retinopathy; such cases are rapidly progressive.

Methods of Grading and Classification of Retinal Hypertensive Changes

The choice of a method of grading hypertensive fundus lesions depends upon the observer's needs, and since these needs may vary, it is not possible to designate one method as the best. The choice is relatively easy in most instances, however, since the field can be narrowed to the two most useful, the Wagener-Clay-Gipner method and the Keith-Wagener-Barker grouping, each of which is best in its own field of application.

Because of the lack of correlated information, there is no method with weighted evaluations of the lesions to provide a numerical grading system; but, for the purposes of the cardiologist, the internist with a special interest, the ophthalmologist, or for the clinical investigator in this field, the classification and method of grading proposed by the American Ophthalmological Society,[1] through its committee (Wagener, Clay and Gipner) on the study of this problem, is excellent for recording detailed descriptions of the hypertensive, optic fundi. The essential features of this classification are as follows:

Wagener-Clay-Gipner (AOS Committee) Classification[1]

This classification of the retinal vascular lesions of hypertension recognizes the three fundamental types of alterations which may occur in the retinal arterioles in hypertensive disease, namely, *generalized narrowing* (which probably represents the generally increased tone of the arteriolar system), *focal constriction* ("spasm"), and *sclerosis* (organic thickening of the wall of the arteriole).

Generalized Narrowing of the Arterioles.

Grade 1. Reduction of caliber of the arterioles to ¾ average caliber or an A-V ratio of ½.

Grade 2. Reduction of caliber of arterioles to ½ average caliber or an A-V ratio of ⅓.

Grade 3. Reduction of caliber of arterioles to ⅓ average caliber or A-V ratio of ¼.

Grade 4. Arterioles thread-like or invisible.

Focal Constriction or Focal Sclerosis of Arterioles.

Grade 1. Localized narrowing to ⅔ caliber of proximal segment of arteriole.

Grade 2. Localized narrowing to ½ caliber of proximal segment of arteriole.

Grade 3. Localized narrowing to ⅓ caliber of proximal segment of arteriole.

Grade 4. Arteriole invisible beyond the point of constriction, (or, in the case of focal sclerosis, visible only as a thin fibrous cord).

Generalized Sclerosis of Arterioles (Figure 1).

Grade 1. Brightening or increased lustre of the arterioles; mild depression of the veins at the points of arteriolar crossing with reduction of visibility of those portions of the veins which underly the crossing arteriole.

Grade 2. Burnished coppery color of the arterioles, with definite depression of underlying veins, widening of the apparent arteriolovenous crossing spaces and almost complete invisibility of

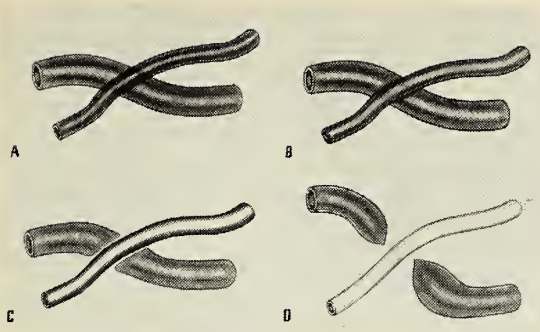


Figure 1. Progressive stages of sclerosis in a retinal arteriole, illustrating the associated changes in the underlying vein at the arteriolovenous crossing, changes sometimes inadequately referred to as "nicking." The grading is according to the method of Wagener, Clay, and Gipner[1] (*q.v.*): *A*, normal arteriolovenous crossing; *B*, sclerosis, grade 1; *C*, sclerosis, grade 2; *D*, sclerosis, grade 3. (Grade 4, in which the arteriole appears as a fibrous cord, is not shown.)

those portions of the veins which underly the crossing arterioles.

Grade 3. Polished silver color of the arterioles. Widening of the apparent arteriolovenous crossing spaces with a change in the course of vein ("right-angled crossing" or "deflection"), complete invisibility of those portions of the veins which underly the crossing arteriole, distal dilatation of the veins ("banking"), and apparent tapering of the veins as they underly the crossing arteriole.

Grade 4. Arterioles visible only as fibrous cords without blood streams.

The A.O.S. committee has further proposed to classify the diagnostic lesions in the retina according to terminology which reflects the clinical course of the hypertensive pattern in the eye grounds. While such a classification does not include a numerical grading of severity, this deficiency does not detract from its prognostic significance.

The following is the A.O.S.-recommended classification of vascular hypertension (on the basis of the angiopathy and retinopathy produced):

Neurogenic Hypertension

No diagnostic lesions in the retina, even in cases of considerable duration, except perhaps mild generalized narrowing of arterioles.

Acute Hypertension ("Angiospastic")

No arteriolosclerosis.

Generalized narrowing of the arterioles.

Focal constrictions in arterioles.

Edema of retina, cotton-wool patches, hemorrhages (usually).

Edema of the disc (often).

May terminate in recovery, chronic hypertension, or in rapidly progressive (fulminating) malignant hypertension.

Chronic Non-progressive ("benign") Hypertension

Only mild, generalized narrowing of arterioles (grade 1 or 2), if seen in early years.

Also mild, generalized arteriolosclerosis (grade 1 or 2) is seen after several years duration of the hypertension.

At times ischemic or hemorrhagic infarctions of the retina.

Chronic Progressive Hypertension

Always generalized arteriolosclerosis.

Generalized narrowing of arterioles.

Focal constrictions in arterioles.

At times focal arteriolosclerosis.

At times cotton-wool patches and hemorrhages in retina.

Terminal, Malignant Hypertension

Always generalized arteriolosclerosis.

Always papilledema.

Generalized narrowing of arterioles.

Focal constriction in arterioles.

At times focal arteriolosclerosis.

Usually edema of retina, cotton-wool patches, and hemorrhages. Often residues of edema in form of macular stars or scattered punctate deposits.

Note: Any of these varieties or phases of hypertension, except neurogenic variety, may be primary ("essential") or may be secondary to some demonstrable causative lesion or disease.

Keith-Wagener-Barker Classification[2]

This clinical grouping of essential hypertension cases is sometimes erroneously considered a classification on the basis of the eye grounds alone. It is true that the retinal observations occupy a prominent place, but the classification is, nevertheless, clinical in the broad sense and takes into account the evaluation of the whole patient.

This method is useful for practitioners and clinicians who are interested in a fairly rapid and "practical" evaluation of the eye grounds without resorting to detailed descriptions and examinations. It is, however, less exacting as an investigative tool.

The division into clinical groups is as follows:

Diffuse Arteriolar Disease with Hypertension (Essential).

Group 1. The hypertension does not usually reach high levels and can be long-standing without causing symptoms. Cardiac and renal functions are adequate, and there is, at most, a slight albuminuria at times and a gradual development of cardiac hypertrophy; EKG changes are minimal. There is no retinopathy, and the changes in the retinal vessels are slight or absent. Five-year survival in this group of patients in the original study was found to be approximately 70 per cent.

Group 2. These patients usually have moderate to marked sclerosis of the retinal arterioles, and occasionally hemorrhagic or ischemic infarctions may occur. It is to be noted that these patients may have a severe angiopathy but will not have retinopathy.

Occasionally patients at first appearing to belong to this group may actually belong to group 3 or 4, because of their markedly progressive nature. It is sometimes necessary to observe cases over a period of time to determine this.

Patients in this group enjoy good general health, sometimes for many years, and cardiac and renal functions are affected but adequate. Whereas, the disease in group 1 is almost non-progressive, it is slowly progressive in group 2. In the original series, approximately 50 per cent of the patients in this group survived for more than five years; however, certain patients belonging to this group lived comfortably for many years.

Group 3. Hypertension in the patients in this group is often high and frequently without remission. Diffuse arteriosclerotic changes can be palpated in some of the larger arteries, such as the radial, posterior tibial, and superficial temporal. Cardiac and renal functions may be adequate to sustain the individual, but usually show signs of beginning impairment. Headache, dizziness, and visual disturbances are common.

The optic fundus reveals retinopathy as well as angiopathy; there may be diffuse edema, cotton-wool patches, and hemorrhages in the retina, superimposed upon a combination of arteriolar changes, consisting of sclerosis, attenuation, and spasm. The edema in the eye-grounds of these patients is limited to the extrapapillary regions and does not involve the disc. The percentage of survivors beyond five years in this group was about five per cent. Occasionally patients in this group will have remissions, during which there will be symptomatic relief as well as partial improvement of the angiospasm and retinopathy.

Group 4. The patients in this group have a persistently high blood pressure, palpable arteries in their peripheral circulation, and marked retinal changes. Cardiac and/or renal functions are soon seriously impaired. Symptoms of encephalopathy are frequently present. There is often nervousness, asthenia, loss of weight, headache, disturbances in vision, exertional dyspnea, nocturia, and symptoms of neurologic lesions. The findings in the eye grounds consist of severe angiopathy (including all degrees of sclerosis, attenuation, and spasm), and neuroretinopathy.

This last feature, more especially the papilledema, is of grave prognostic importance in cases of hypertension, since it usually indicates the terminal phase of the disease. The prognosis in this group, therefore, is extremely serious.

A few of these patients will have temporary remissions which result in a slightly more prolonged survival, and an occasional patient will survive several years after the initial examination which placed him in group 4. Keith[2] and his associates found that only 20 per cent of their cases in this group survived the first year, 10 per cent the second year, and only 2 per cent were alive at the end of five years.

It is often useful, and always adds to the accuracy of the fundus examination when this method is used, to combine this Keith-Wagener-Barker grouping with the Wagener-Clay-Gipner (A.O.S.) graded descriptions of the angiopathy. The observer might report, for example, Group 3, hypertensive fundus with Grade 2 sclerosis and narrowing. Sensitivity of observation is thus increased, so that changes and progression can be observed within each group in addition to the graduation from one group to another.

Comment

Retinopathy and papilledema imply a serious prognosis; it is therefore of considerable importance that the ophthalmoscopist be acquainted with the conditions with which they may be confused. For the practitioner whose work requires the frequent use of the ophthalmoscope, this presents no particular problem, as a rule. To the occasional ophthalmoscopist, however, fundus abnormalities associated with conditions other than hypertension may be confusing or even misleading.

Some of the conditions with which hypertensive retinopathy or neuroretinopathy may be confused are as follows: the retinopathy of diabetes, particularly when associated with hypertension; the fundus pictures of tributary or central venous thrombosis, chorioretinitis, retinitis pigmentosa (especially when the pigmentary disturbances are minimal or confined to the periphery); the fundus lesions associated with severe anemia and leukemia; optic neuritis; the papilledema associated with acute toxemias or with increased intracranial pressure due to brain tumor; and conditions simulating papilledema, such as congenital pseudoneuritis and medullated nerve fibers.

Lesser to moderate amounts of retinal vascular sclerosis often occur as a part of the normal aging process. Otherwise, however, this sclerosis may be taken as an indication of the chronicity of the hypertensive process.

Similar findings in the choroidal vessels are often

associated with these changes, and pigmentary disturbances overlying the choroidal vessels, usually in the periphery of the fundus, are also manifestations of hypertension of long standing.

Ophthalmoscopically these pigmentary disturbances are seen as small black spots or clumps, often with a yellowish or pinkish halo around each one, and situated near the peripheral choroidal vessels (Elschnig patches), or the pigment may be distributed as a series of small black dots arranged close to each other and in a row, like a string of beads (Siegrist streaks), overlying a peripheral choroidal vessel, usually sclerosed.

Attenuation and spasm of the retinal arterioles usually indicate varying degrees of *progressive* hypertensive disease. The development of neuroretinopathy, that is, retinopathy associated with papilledema, often means increased intracranial pressure and indicates a terminal stage of disease. Occasionally, papilledema will appear before there is any evidence of retinopathy; this must be considered evidence of an acutely developing angiospastic type of hypertension.

The study of cases for investigative purposes, or the selection of cases suitable for sympathectomy, should employ the most exacting methods of classification and grading of the eye-ground findings in order that they may be correlated with results. In many instances repeated observations of the fundi are necessary for proper evaluation.

As regards the selection of cases for sympathectomy, the interpretation of the eye findings has not yielded sufficiently consistent results to formulate any reliable and rational method. However, in general, it may be said that patients in Keith, Wagener, and Barker Group 1 probably do not need surgery, those in Group 2 may do as well on medical treatment, occasionally better, while those in Groups 3 and 4 should be considered for surgery. As a rule, signs of progression increase the urgency and desirability for surgery in the treatment of the essential hypertensive patient, while ocular evidence of moderately advanced to advanced sclerosis is a discouraging prognostic sign as regards the results of sympathectomy, although sclerosis does not, *per se,* constitute a contraindication. Such observations must be correlated with other clinical and laboratory data in the selection of these cases.

Spontaneous remission must constantly be kept in mind as a possibility, even in group 4 patients, when evaluating the effects of surgical or other treatment.

Summary

The optic fundus changes of vascular hypertension and methods of evaluating these changes are discussed. The methods described by Wagener, Clay, and Gipner and by Keith, Wagener, and Barker are the two most useful, each having its own advantages. These methods may be used individually or in combination, depending upon the specific requirements of the examination.

References

1. Wagener, H. P., Clay, G. E., and Gipner, J. F.: The Retina in the Presence of Vascular Hypertension; American Ophthalmological Society, 1946.
2. Keith, N. M., Wagener, H. P., and Barker, N. W.: Some Different Types of Essential Hypertension: Their Course and Prognosis; Am. J. Med. Sci., 197:332-343, (Mar.) 1939.
3. Friedenwald, J. S., A New Approach To Some Problems of Retinal Vascular Disease; Am. J. Ophth., 32: 487-498, (April) 1949.

PATRONIZE JOURNAL ADVERTISERS

It is advertisers who make possible the publication of the Journal in its present form. They are deserving of your patronage.

The Control of Postoperative Pain in Ano-Rectal Surgery*

Claude C. Tucker, M.D.

Wichita, Kansas

The need for a reliable, non-toxic anesthetic agent which would produce a local anesthesia for a prolonged period is rather well known. The proctologic surgeon is perhaps more acutely aware of this need since postoperative pain following ano-rectal intervention is marked. It is significant that the laity considers surgery to this area particularly painful and for this reason many delay treatment.

In the past many agents have been proposed for post-operative pain control and have subsequently been found wanting. The use of the anesthetic oil solutions for pain following proctologic surgery was first suggested in 1927.[1]

The rationale for the use of these solutions was dependent upon the immiscible oil solvent inhibiting the absorption of the anesthetic agent. The first studies[2, 3, 4] of the use of these agents were soon followed by contradictory reports[5, 6] describing their failure. This controversy was resolved by the work of Duncan and co-workers[7] who demonstrated that any prolonged anesthetic effect observed was due to a neuro-degeneration caused by benzyl alcohol, a common agent of the preparations exerting a positive effect, and not because of the oil solvent. Kelly[8] confirmed this work and clinically proved the failure of the anesthetic oil solution. It should be noted that in addition to their general anesthetic failure, these oil solutions produced abscesses, encapsulated oil-cysts, local tissue reactions and sloughs.

A new approach to the problem of prolonged local anesthesia is provided in the development of Efocaine.[9] The rationale for this agent is based upon the well known pharmacologic fact that agents which are slightly soluble are slowly absorbed and therefore exert a prolonged effect. This is the basis for the extended effect observed with the suspensions of the hormones[10] and with procaine penicillin.

While a prolonged effect may be observed with certain suspensions, this class of pharmaceutic preparations has many inherent limitations. Accurate dosage is impossible because of sedimentation. The large bore needle necessary to permit the passage of the particles causes undue operational trauma. In particular reference to the anesthetic bases, these hydrolyze on contact with water which obviates their use as suspensions.

These limitations are entirely circumvented by Efocaine, which is a solution of the normally insoluble procaine base and butylamino-benzoate in an aqueous-miscible, non-toxic, organic solvent. This solution is at saturation limits so that the addition of even minimal amounts of body fluid (serum or lymph) causes a complete and immediate precipitation. Thus, when this drug is injected into the body, the dilution by the body fluids causes a deposition of the anesthetic agents to form a crystalline depot, which is slowly absorbed to produce a prolonged effect.

Since Efocaine is a clear solution, with many of the properties of water, a narrow gauge needle may be used. Pathologic study[10] revealed that this agent does not encapsulate, nor does it produce neurodegeneration. In fact, it has been shown[11] that the liquid phase is almost entirely excreted within 24 hours. The residual anesthetic depot has been pharmacologically demonstrated to produce an effect for approximately two weeks[12] without any local or systemic toxicity.

In view of desirability of an agent with these properties in ano-rectal surgery, it was deemed important to explore its scope and application to proctology.

Experimental

The surgical cases studied were unselected and, for the most part, consecutive. The patients ranged in age from 14 to 85 years, consisting of 17 males and 23 females. There was no deviation from the normal operative technique, and the usual surgical anesthesia were employed.

The main sensory nerve supply to the anal and perianal skin traverses the ischiorectal fossa. The large nerve branches, mainly the inferior hemorrhoidal nerves and the perianal branches of the fourth sacral nerves, approach the anus from the posterolateral aspect. They lie deeply in the subcutaneous fat, even at the anal verge, and pass inward through the external sphincter muscles. The anesthetic solution must therefore be deposited in a manner to block all sensory stimuli to these nerves. Efocaine was injected locally into the perianal tissue, at the conclusion of surgery.

*From the Department of Surgery, St. Francis Hospital, Wichita, Kansas.



Figure 1

Figure 2

Technique of Injection

A three inch, 22 gauge needle is inserted into the tissues of the posterior commissure about one inch from, and parallel to, the anus (Figures 1 and 2). Slowly inject a small amount of Efocaine ahead of the needle. Withdraw the needle to the skin surface, and without withdrawing from the skin, reinsert the needle into the deeper subcutaneous tissue, laterally, toward the right side, and repeat the injection keeping the solution ahead of needle while injecting. This procedure is also carried out on the left side. Insert the needle in the anterior commissure and inject in the same fan-wise manner as described above.

Approximately 10 cc. of Efocaine will serve to completely anesthetize the area for almost all anorectal surgical indications. The exact amount will depend upon the particular needs of the patient and the extent of surgery. This should be evenly distributed throughout the tissue in order to achieve a complete block of the nerves innervating this area.

At no time should the needle penetrate through the rectal wall nor should the drug be deposited intradermally. Care should be taken that no bulging results from the injection (an indication of too superficial deposition). It is extremely important not to pool the agent, and the anesthetic solution should be introduced slowly and continuously as the needle is withdrawn, and a fan-wise distribution instituted.

This technique of injection presupposes that the patient is under the control of another anesthetic. When this is not applicable (local injection for pruritus ani or dilations), then skin-wheals should be raised with procaine-hydrochloride solution and the needle inserted through the wheal.

In order to limit the subjective influences as much as possible, neither the patient nor the attending and nursing staffs were aware of the nature of this study. The patient was carefully followed for the presence of pain, the development of any local tissue reactions, presence of anesthesia and the effects on wound healing throughout the convalescence.

An objective index of the degree of postoperative pain relief obtained would be the amount of narcotic medication administered following surgery. The drug requirements of the treated patients when compared with those of the controls, would serve to establish this factor. Similar drug orders were written for all patients—to be administered when needed. There was no attempt to withhold medication. It should be remembered that many patients are extremely apprehensive prior to surgery and require sedative medication. The entire postoperative requirements were evaluated as a whole. When medication was administered an attempt was made to ascertain the exact basis for its need.

The results of this study are presented in Table I.

Discussion

The results of this study are impressive. Efocaine produced a high degree of postoperative analgesia and consequently freedom of pain in almost every instance. This is best demonstrated by the postoperative narcotic requirements of the group. Twenty-three patients received no medication during their hospital stay. Nine patients received one

Table I

THE CONTROL OF POSTOPERATIVE ANO-RECTAL PAIN

Case No.	*Age Sex*	*Surgical Indications or Diagnosis*	*Amount of Efocaine Injected (cc.)*	*No. of Doses of Postoperative Medication Required*	*Degree of Pain Relief Obtained*	*Remarks*
1.	24M	Combined Hemorrhoidectomy, Infected Anal Ducts & Fissure.	3	2 Doses	No Relief	3 cc. of Efocaine is not enough to control pain in a sensitive patient; catheterized once.
2.	27F	Combined Hemorrhoidectomy, Infected Anal Ducts, Fistula and Fissure.	10	None	Complete	Catheterized the same day of surgery; no medication.
3.	28F	Combined Hemorrhoidectomy, Infected Anal Ducts.	5	None	Complete	No pain and no medication following surgery.
4.	39M	Combined Hemorrhoidectomy, Infected Anal Ducts & Rectal Abscess.	10	1 Dose	This patient very sensitive. Good.	Patient on the verge of a nervous collapse. Medication same day of surgery.
5.	23F	Combined Hemorrhoidectomy, Infected Anal Ducts.	10	2 Doses	Complete	Medication day of surgery.
6.	41M	Combined Hemorrhoidectomy, Infected Anal Ducts, Pruritus Ani.	10	2 Doses	Complete for five days.	Patient was reinjected with 10 cc. of Efocaine five days after surgery; catheterized day of surgery.
7.	31M	Internal Hemorrhoidectomy and Infected Anal Ducts.	10	1 Dose	Complete	Medication given day of surgery.
8.	40F	Fistula-In-Ano.	10	None	Complete	Catheterized day of surgery but required no medication.
9.	25F	Combined Hemorrhoidectomy, Infected Anal Ducts and Fissure.	10	None	Complete	No pain or medication.
10.	38F	Combined Hemorrhoidectomy, Infected Anal Ducts.	10	None	Complete	No pain or medication.
11.	51M	Combined Hemorrhoidectomy, Infected Anal Ducts & Pruritus Ani.	10	None	Complete	Anesthesia began to wear off at end of seven days, reinjected 10 cc., no pain.
12.	29M	Combined Hemorrhoidectomy, Infected Anal Ducts and Fistula.	10	None	Complete	No pain, back to work in two weeks.
13.	24F	Combined Hemorrhoidectomy, Infected Anal Ducts & Pilonidal Cyst.	10	2 Doses	Slight pain on dilations.	Medication and catheterization day of surgery.
14.	39M	Combined Hemorrhoidectomy, Infected Anal Ducts.	10	1 Dose	Good	Patient had a third degree prolapse of internal hemorrhoids, did not require medication until five days after surgery. Developed an anxiety reaction and was treated by psychiatrist.
15.	26M	Combined Hemorrhoidectomy, Infected Anal Ducts and Fistula.	10	1 Dose	Good; nervous reaction.	Catheterized once; medication day of surgery.
16.	24F	Combined Hemorrhoidectomy, Infected Anal Ducts.	10	4 Doses	Good; nervous reaction.	Catheterized day of surgery, medication first two days following.
17.	28M	Combined Hemorrhoidectomy, Infected Anal Ducts.	10	4 Doses	Good; nervous reaction	Catheterized day of surgery, medication given first and third days after surgery.
18.	41F	Combined Hemorrhoidectomy, Infected Anal Ducts and Fissure.	10	1 Dose	Complete	Pain day of surgery, none thereafter.
19.	39F	Combined Hemorrhoidectomy, Infected Anal Ducts and Fissure.	10	6 Doses	Complete	Patient an alcoholic. Hospital gave her medication as a control measure. She stated that she had no rectal pain.
20.	36M	Combined Hemorrhoidectomy, Infected Anal Ducts.	10	5 Doses	Fair	Patient became extremely nervous before surgery, required medication first three days after surgery.
21.	14F	Combined Hemorrhoidectomy, Infected Anal Ducts and Fissure.	10	None	Complete	Patient very nervous and neurotic but required no medication.

THE CONTROL OF POSTOPERATIVE ANO-RECTAL PAIN (Continued)

Case No.	Age Sex	Surgical Indications or Diagnosis	Amount of Efocaine Injected (cc.)	No. of Doses of Postoperative Medication Required	Degree of Pain Relief Obtained	Remarks
22.	70M	Combined Hemorrhoidectomy, Infected Anal Ducts and Crypts.	10	None	Complete	Relief to extent that patient was "running around" on second day.
23.	85M	Combined Hemorrhoidectomy, Infected Anal Ducts and Crypts.	10	None	Complete	No pain or medication.
24.	68F	Combined Hemorrhoidectomy, Infected Anal Ducts.	10	None	Complete	No pain or medication.
25.	38F	Combined Hemorrhoidectomy, Infected Anal Ducts.	10	1 Dose	Almost complete.	No pain.
26.	40F	Combined Hemorrhoidectomy, Infected Anal Ducts.	10	1 Dose	Almost complete.	No pain, medication given before first BM as precaution.
27.	39F	Combined Hemorrhoidectomy, Infected Anal Ducts.	10	None	Complete	No pain or medication.
28.	44M	Combined Hemorrhoidectomy, Infected Anal Ducts.	10	1 Dose	Almost complete.	No pain, medication given as precaution before first BM.
29.	45M	Combined Hemorrhoidectomy, Infected Anal Ducts.	10	1 Dose	Almost complete.	No pain, medication given as precaution before first BM.
30.	39M	Combined Hemorrhoidectomy, Infected Ducts, Pruritus Ani.	10	None	Complete	No pain, medication given as precaution before first BM.
31.	40F	Combined Hemorrhoidectomy, Infected Anal Ducts and Fissure.	10	None	Complete	A tab was nipped off five days after surgery without any feeling to patient.
32.	30F	Pruritus Ani.	10	None	Complete	Patient injected in office following undercutting operation for pruritus ani. Complete relief.
33.	35M	Ulcerative Colitis.	10	None	Good	Patient received great deal of relief of rectal pain caused by diarrheal disease.
34.	81F	Combined Hemorrhoidectomy, Infected Anal Ducts and Fissure.	10	None	Complete	Patient injected prior to dilation, complete relief.
35.	48F	Pruritus Ani.	10	None	Good	Patient extremely neurotic, some relief, still complained.
36.	40F	Fissure-in-ano.	10	None	Complete	Fissure healed.
37.	45F	Combined Hemorrhoidectomy, Infected Anal Ducts.	10	None	Complete	No medication or catheterization necessary.
38.	43M	Pruritus Ani.	10	None	Good	Patient relieved of itching but still greatly inflamed on last visit. Not an operative case.
39	40F	Multiple Fissures.	10	None	Complete	Fissures Healed.
40.	28F	Referred postoperative case; Injected to Dilate.	10	None	Complete	Dilations without pain.

dose of postoperative medication. This was administered to four prior to the first bowel movement as a precautionary measure; four were extremely apprehensive and were given sedative medication on the first day of surgery. One patient had an anxiety reaction on the fifth postoperative day which required psychiatric care, and medication was administered at this time.

Of the four patients receiving two doses of narcotic medication two were extremely apprehensive, one had pain on dilation and one patient was injected with only three cc. of Efocaine, which is not enough to entirely block the perianal region. Four patients required more than two doses of postoperative medication. One, an alcoholic, was administered sedatives as a control procedure; the others developed severe anxiety reactions which required sedative medication. It is important to recognize that almost all of the postoperative medication was administered on the day of surgery and for reasons

other than pain in the operative area.

In summary, 32 of the patients (80 per cent) received none or one dose of postoperative medication; four (or 10 per cent) were given two doses and four (10 per cent) more than two doses. An analysis of control patients undergoing identical surgery reveals that the average patient requires medication for at least four days, which again accents the pain relief afforded by prolonged local anesthesia.

Six of the patients (15 per cent) were catheterized and *all on the first day of surgery*. This best serves as an objective confirmation of the anesthetic activity and pain relief afforded since Johnson and Schilla[13] reported in their survey that in a series of 100 ano-rectal cases, 66 per cent required catheterization at least once, 20 per cent were catheterized twice, and nine per cent three or more times.

Local anesthesia was generally present for more than 10 days. In one instance its effects began to wear off after five days; in another after seven days. These patients were reinjected with Efocaine, which again produced prolonged anesthesia. Sphincter control was normal in all instances. It is of interest to note that a greater flexibility in the postoperative care exists because of the prolonged anesthesia. The patients generally felt better and early ambulation was promoted.

There were no untoward reactions observed in any of the patients. There were no local tissue reaction, sloughs, or abscesses, as have been observed with the oils.

Our experiences with this drug have been most satisfactory. Its proper use in proctology will result in an alleviation of much of the postoperative ano-rectal pain.

Summary and Conclusions

1. The scope of Efocaine as a means of controlling postoperative ano-rectal pain was evaluated in a series of 40 patients.

2. A dramatic relief of postoperative pain was observed in almost every instance, and postoperative narcotic requirements were virtually eliminated.

3. There were no local tissue reactions nor any untoward effects observed in any of the patients.

4. This drug is an effcetive means of pain control and is worthy of routine use in ano-rectal surgery.

References

1. Yeomans, F. C., Gorsch, R. V., and Mathesheimer, J. L.: Benacol in Treatment of Pruritus Ani: Preliminary Report, Med. Rec., 127:19 (1928).
2. Gabriel, W. B.: Treatment of Pruritus Ani and Anal Fissure; Use of Anesthetic Solutions in Oil, Brit. Med. J. 1:1071 (1929): Treatment of Pruritus Ani and Anal Fissure, Brit. Med. Jr. 2:311 (1930): Recent Advances in the Treatment of Rectal Diseases, Practitioner 133:489 (1934).
3. Morgan, C. N.: Oil Soluble Anesthetics in Rectal Surgery, Brit. Med. J. 2:938 (1935).
4. Gorsch, R. V.: Oil Soluble Anesthetics in Proctology, Med. Rec. 139:35 (1934).
5. Smith, T. E.: Relief of Pain Following Ano-Rectal Surgery, S. Med. J. 36:650 (1943).
6. Brown, W. E., Wilder, W. M., and Schwartz, P.: A Study of Oils Used for Intramuscular Injections, J. Lab. Clin. Med. 29:259 (1944).
7. Duncan, D., and Jarvis, W. H.: A Comparison of the Action on Nerve Fibers of Certain Anesthetic Mixtures and Substances in Oil, Anesthesiology 4:465 (1943).
8. Kelly, M.: Failure of Oil-Soluble Anesthetics to Give Prolonged Analgesia, Lancet 1:710 (1947).
9. Ansbro, F. P., Iason, A. H., Shaftel, H. E., Bodell, B. B., and Halpern, A.: Efocaine, A New Concept for Prolonged Anesthesia, In press.
10. Richards, R. K., Spruth, H. C., and Russell, M. K.: Prolongation of Estrus by Injection of Suspensions of Estrogen Crystals, Proc. Soc. Exper. Biol. Med. 48:400 (1941).
11. Weinberg, T., Chief Pathologist, Sinai Hospital, Baltimore, Md., Personal Communication.
12. Iason, A. H., and Shaftel, H. E.: A New Approach to the Problem of Postoperative Pain, Am. J. Surg., In press.

CHANGE OF ADDRESS

Please notify the Kansas Medical Society of any changes in address.

Help keep the mailing list up to date.

BLUE SHIELD

Doctors Get Good Score

Doctors in general and their competent services in particular got a good score from Blue Cross-Blue Shield members throughout Kansas during recent Member Council Meetings. The Member Council Meetings are scheduled in the spring and fall each year. Nine separate meetings are held so that a representative group of members meet in each part of the state. Over 150 attended the nine meetings.

Questionnaire

One innovation in this spring's series of meetings was a carefully prepared questionnaire which contained some 25 questions on various aspects of the Blue Cross-Blue Shield program.

One of the questions concerned the attitude of members toward the medical profession. The question read as follows:

"How Do You Feel About Your Doctors?"

In analyzing the returns, it was found that out of the 97 people answering the question, 74 people indicated a favorable opinion of doctors, whereas 23 had certain reservations. Some of the actual answers may prove interesting. They are quoted below.

"I Love Mine"

"Our doctors are fine, but I feel they should appreciate Blue Shield more and do more to help members understand it."

"Personally, I think they are all right; as a group they do not sufficiently support their own plan."

"Never get to see one, due to waiting lines most of them are overworked."

"Some doctors are very cooperative, while others want to charge farmers against their gross income."

"Doing all they can for Blue Cross and Blue Shield."

"In our town I think their prices are too high."

"Too far from local community to make calls in the country."

"One rural doctor for entire north half of county, results in more hospitalization."

"More or less independent."

"Half of them don't cooperate with hospitals as fully as they should."

"Doctors are fine but we need more of them in our town. The doctors at present are not specialists in everything."

"Sometimes I don't feel like they do all they can. Just too busy with all concerned."

"Excellent, both in ethics and service."

"Overworked, too many specialists expect too much of the average person."

"Doing a splendid job."

"The doctors are very busy, necessitating a long wait in the office."

"Our town's blessed with good doctors."

"Do not have enough doctors who can or will make home calls."

"Doctors should be better informed on Blue Cross in addition to Blue Shield."

Rocket Research Delayed for Drug Production

The Army Ordnance Corps is voluntarily deferring deliveries of a chemical compound called hydrazine, being experimented with as a rocket propellant, so that more of it may be used to produce new drugs which have brought dramatic improvement in tuberculosis patients. Announcement of the arrangement was made recently by the Department of Defense.

Recent publicity has told of the promise given by a family of new anti-tuberculosis drugs, an essential part of which is hydrazine. Tests are being conducted at New York hospitals on more than 200 tuberculosis patients, many whose cases appeared to be hopeless. While the drugs are not considered a cure, results of tests have been encouraging and almost all of the 200 patients have shown improvement.

No volume production of hydrazine was undertaken until 1946, when Army Ordnance sponsored large-scale manufacture of the compound by the Mathieson Chemical Corporation of Niagara Falls. A production base for the compound was thus established, and the corporation is now the principal supplier of hydrazine in the United States.

Cancer Conference in Wichita

The Fourth Annual Mid-West Cancer Conference, held at Wichita, April 3 and 4, attracted an attendance of about 275 physicians. Although most were from Kansas, registration records show that doctors attended from Nebraska, Missouri, Oklahoma and Michigan also.

All of the scientific papers presented at the conference will be published in a bound issue which will be mailed to all members of the Kansas Medical Society as a supplement to the Journal.

Over 80,000,000 people have thought of hospital care at a time when they are not ill, reported Dr. Anthony J. J. Rourke, president of the American Hospital Association, at a recent Blue Cross and Blue Shield conference. That number of people carry hospital coverage today.

PRESIDENT'S PAGE

Dear Doctor:

Another very notable year in the history of the Kansas Medical Society has gone into the record. The history of the Kansas Medical Society is definitely one of continued worthwhile achievement throughout the years, and the year just closed has been no exception to the rule. Under the devoted and skillful guidance of Dr. Benage it has taken its place in our history and will be remembered as a year of achievement and advancement.

One of the really great and worthwhile attributes of our organization is the imperturbability of the membership as typified by the working physician and his determination to devote himself wholeheartedly, sincerely and unselfishly to the health of the people of Kansas and to dedicate his life to the accomplishment of worthwhile goals in the public interest.

We hope during the coming year to be able to live up to and to reflect the great traditions which have been so admirably set up by those who have preceded us through the years. We hope definitely to give of ourselves and our time unstintingly in order that a fully developed program of public relations and education may be developed and be a reality to the people of Kansas and to our membership. Also, we will expect to concern ourselves as a Society with political activity in its highest American tradition, in order that we may obtain and preserve those things which are best for our people and ourselves and our profession, either local or national. We have the firm conviction that the great American traditions which have made this country the most remarkable country in history are worth saving and worthy of every individual's effort who is privileged to live within our boundaries.

We expect to continue to cooperate with our closely allied professions with whom we have built up a very enviable relationship. It is our opinion that the policies underlying the formation of this group and the goals which they have set for themselves are worthy of the continued consideration of the Society. Great progress can be accomplished if we have the cooperation of officers, committees and members. I humbly bespeak of you such cooperation.



EDITORIAL COMMENT

Editor Resigns

Dr. Lucien R. Pyle resigned as editor of the Journal upon his election to the position of president-elect of the Kansas Medical Society on May 1, 1952. This change will become effective with the next issue.

Dr. Pyle has been editor of this Journal for six years. Even a brief review of the issues published under his direction will immediately reveal many changes that have taken place during this period. The Journal has become larger with more scientific material included. New departments have been added, and in general the official publication of the Kansas Medical Society has expanded its influence.

In recognition of outstanding services, the Society gave Dr. Pyle the highest honor which is in its power to bestow upon a physician in this state. This honor, richly deserved, not only for his work as editor, his contributions to the council, his outstanding achievements as chairman of the Kansas Volunteer Advisory Committee, comes also as a tribute to an eminent physician and to a remarkable gentleman whose qualities of leadership and whose absolutely uncompromising integrity have made him admired and respected by all who have met him.

He has a combination of qualities which are rarely found in persons outside the field of medicine, and is distinguished even within his own profession. This combination embodies many things, but immediately noticeable is a balance between the ability to evaluate fact without bias, to appreciate people for what they are, and to practice the idealism upon which medicine is founded. Those qualities have made him a splendid editor, but give promise to provide the Kansas Medical Society in the near future with an equally capable president.

Readers of the Journal will miss his many contributions, but upon the completion of this service to his Society he will enter into a sphere of broadened influence. The Editorial Board takes this opportunity of expressing its thanks, with those of the medical society, to Dr. Pyle and wishes him continued success in his new responsibilities during the years to come.

The new editor elected by the council will be Dr. Orville R. Clark, Topeka, who has served on the Editorial Board for many years. Everyone familiar with Dr. Clark and his serious acceptance of responsibility knows the Journal is in most capable hands. There is no doubt in the minds of everyone but that the Journal will continue to progress and will continue to increase its importance to the physicians of this state. Dr. Clark, besides performing many services for the Journal, has for three years accepted full responsibility for the publication of the annual cancer supplement. The Journal, therefore, is very proud to have Dr. Clark become editor and is further pleased to announce that Dr. David E. Gray of Topeka will succeed to the vacancy on the Editorial Board created by the resignation of Dr. Pyle.

Annual Session in Kansas City

The 93rd annual session of the Kansas Medical Society is closing just as the deadline arrives for this issue of the Journal. Therefore, official proceedings and a more detailed account of the activities at this meeting will be published in the June issue. For the present, the following are a few outstanding recollections of this event.

Dr. Lee H. Leger, general chairman, the state meeting committee, and the entire Wyandotte County Medical Society were magnificent hosts. They had planned all activities of the convention with such care that each event proceeded on schedule and without outward difficulty. The Kansas Medical Society wishes to express its gratitude to the Wyandotte County Society for a splendid meeting.

Although physical facilities in the meeting hall were not completely adequate for the needs of the meeting, everyone accepted these inconveniences and discovered that the session proceeded far better than anticipated. For example, the exhibit hall was crowded, but instead of this factor presenting an obstacle, it became an asset in that the narrow aisles gave every physician a better opportunity of visiting all persons who exhibited. The excellence of the scientific program did much to erase the memory of a long climb to the meeting hall. Therefore, the physical facilities were no barrier to the general success of this meeting.

All events were well attended and apparently enjoyed. Five hundred fifteen members of the Kansas Medical Society registered for this meeting. In addition there were almost 300 medical students from the University of Kansas and guest physicians. Adding to this the members of the Kansas Medical Assistants' Society and of the Auxiliary who attended this convention, the total came to almost 1,200. Even the weather cooperated to bring a week of sunny skies, which quickly erased the flood threat that appeared imminent the week previous.

Dr. Clarence H. Benage concluded a memorable year as president of the Society and presided over all business functions as well as at the annual banquet, which featured an evening of entertainment

by way of dancing. An incidental surprise pleasure occurred during the banquet in the visit of Dr. George M. Gray, 96-year-old past president of the Kansas Medical Society.

The meeting closed with the election of officers, which gave the Society the following leadership for the coming year:

Warren F. Bernstorf, M.D., Winfield, President

Lucien R. Pyle, M.D., Topeka, President-Elect

Murray C. Eddy, M.D., Hays, First Vice President

John M. Porter, M.D., Concordia, Second Vice President

Dale D. Vermillion, M.D., Goodland, Secretary

John L. Lattimore, M.D., Topeka, Treasurer

Laurence S. Nelson, M.D., Salina, Delegate to the A.M.A.

George F. Gsell, M.D., Wichita, Alternate to the A.M.A.

The Society also elected councilors to fill four places for those whose terms had expired. Among these, Dr. Clyde W. Miller, Wichita, is a new member, serving on the council for the first time. Dr. Lloyd W. Reynolds, Hays, having been previously appointed to fill a vacancy, was elected to his first term. The other two, Dr. James G. Hughbanks, Independence, and Dr. Robert G. Klein, Dodge City, were elected to second terms.

Plans have already been made for the 1953 meeting, which will be held at Wichita, May 3 to 7, 1953, and will be a special occasion in that Wichita will be celebrating the 50th anniversary of the organization of the Sedgwick County Medical Society.

Hospital Costs

During these days of rising costs some criticism has arisen over the increased cost of illness. Hospital care accounts for a considerable portion of this, and in an effort to establish a better picture of this situation there has been created a Commission on Financing of Hospital Care. This is of special interest to both the American Hospital Association and the American Medical Association and will bring together a staff of experts in numerous fields. The story of this effort is of interest in that it proposes to analyze much information regarding the cost of illness. It appears this work will be done thoroughly because the commission has many well known names and a budget of one-half million dollars with which to work.

The commission proposes to study a series of basic questions. One will be an evaluation of the present financial status of hospitals. This involves a consideration of the source of income as well as business practices of hospitals. The second phase considers the need and demand for hospital services, where the commission will explore the areas surrounding minimum facilities for maximum usage. An attempt will be made to correlate supply and demand.

A third pertains to the effect of medical practice on hospital costs, where such questions as why physicians hospitalize patients will be studied and whether medical research should be conducted in hospitals. In their own words they state, "The functional relationship of the hospital and the physician should be clarified with a view toward more effective and economical use of equipment and personnel."

The next subject is an exploration toward determining how high quality services may be obtained at lowest possible cost. The fifth is an evaluation of systems of payment for hospital care; sixth, the utilization of hospital resources, and seventh, recommended changes which appear desirable as a result of this study.

If properly conducted, this appears to be a worth while undertaking and one in which the medical profession and hospital administrators may well cooperate, not only on national but at state and local levels as well. It is a common problem which, if solved satisfactorily, can materially aid in answering current criticism.

Even on the surface this is a complex situation. During the years 1946 to 1950, 660 hospitals have been built in the United States and an additional 20,000 hospital beds have been added at an investment of one billion dollars. Along with that, more people are using hospitals. Twenty-one per cent more people were hospitalized in 1950 than in 1946, but the average length of stay was reduced 15 per cent. Expenses have risen. The per patient day costs in 1946 were $9.39. In 1950 they were $15.62, showing an increase of 66 per cent. In that same period, the patient income to hospitals had risen 69 per cent. At the same time, however, hospital costs rose even more rapidly so that the hospitals in the United States lost $1.64 per patient day in 1946, but even at the higher rate of pay the hospitals lost $2.51 per patient day in 1950.

Five years ago payroll accounted for 53 per cent of hospital expenditures. Today it is 56.7 per cent. It has been learned that the number of persons employed per 100 patients admitted has continually risen from 148 per 100 patients in 1946 to 178 in 1950.

The rapidly expanding insurance programs such as Blue Cross seem further to complicate the picture. Blue Cross growth has been steady and gratifying, but the average use rate has consistently risen, so the expansion of this program presents another problem to the hospital.

In Kansas this is of particular interest because the admission rate is considerably above the national

average. In 1949, 118 of every 1,000 Blue Cross members were hospitalized in the United States. In Kansas that figure was 136. The national figure in 1951 was 123, but in Kansas had jumped to 157. Therefore, even though the average stay is short, the increase in usage more than upsets that advantage. It is dramatically expressed by Kansas Blue Shield as follows: As previously stated, the use rate in this state is greater than the national average, but the average length of stay is shorter than the national average. The end result, however, is that Blue Cross members in Kansas used 74,400 more days of hospital care than they would have used on the basis of the national average.

All this is only an example to illustrate the magnitude of this problem. It is sincerely hoped that the commission can progress rapidly, and if this study may result in a discovery of means for providing adequate health care to the public at reduced cost, those suggestions will be most welcome to the medical profession in this state. The Kansas Medical Society will be pleased to cooperate with the Kansas Hospital Association should any portion of this undertaking be directed to a study of the situation in this state.

COUNTY SOCIETIES

Members of the McPherson County Society were hosts at a meeting held at McPherson March 13 for members of the Harvey and Marion County societies. A paper, "A Psychiatric Viewpoint in the Practice of Medicine," was read by Dr. Allan J. Enelow of the state hospital at Topeka.

* * *

The February meeting of the Sumner County Medical Society was held at Wellington. Three speakers from Topeka presented the evening's program, Mr. Oliver E. Ebel of the Kansas Medical Society, Mr. Sam J. Barham of Blue Cross and Blue Shield, and Dr. Thomas Hood of the Kansas State Board of Health.

* * *

Dr. Fowler Poling and Dr. Louis Morgan, both of Wichita, were speakers at a meeting of the Cowley County Society held in Arkansas City late in March. Their papers were on the subject of mental illnesses.

* * *

Dr. Paul Grubb of Galena was elected president of the Cherokee County Medical Society at a meeting held in Galena late in February. Dr. Frank James, Galena, was named vice president, and Dr. V. Dale Alquist, Baxter Springs, was chosen secretary.

Members of the Geary County Society were hosts to the Golden Belt Medical Society at a meeting held at the Junction City Country Club on April 3. The afternoon scientific program was presented by Dr. Joseph H. Pratt, Rochester, Minnesota, who spoke on "Malignancies of the Cervix and Fundus," and Dr. William L. Valk, Kansas City, whose subject was "Clinical Significance and Management of Hematuria." A dinner session and social hour followed.

* * *

Members of the Southeast Kansas Medical Society met at the Chanute Country Club on March 12. Dr. Robert Newman, of the University of Kansas Medical Center, spoke on "Common Gynecological Lesions."

* * *

A meeting of physicians of the mid-west Kansas area was held at the Park Hills Country Club, Pratt, April 4. Dr. M. E. Christmann, president of the Pratt County Society, presided and introduced the speaker, Dr. Maxwell Allen of the University of Kansas Medical Center. Dr. Allen discussed treatment of hyperthyroidism and the use of radioactive iodine.

* * *

The February meeting of the Dickinson County Society was held at Enterprise. Speaker of the evening was Mrs. Russell C. Foster, Topeka, who spoke on Blue Shield and answered questions about the plan.

* * *

Dr. Kenneth W. Warren of the Lahey Clinic, Boston, was speaker at the March meeting of the Sedgwick County Society. His subject was "A Panoramic View of Pancreatic Surgery." At the April meeting of the society, Dr. Thomas B. Fitzpatrick, of the University of Michigan, Ann Arbor, spoke on "Pigmentation."

* * *

The March meeting of the Shawnee County Society was held at the Jayhawk Hotel on the fourth. Dr. R. M. Shick, of the Mayo Clinic, Rochester, Minnesota, spoke on "Diagnosis and Treatment of Periarteritis Nodosa."

Important messages are presented in the advertisements in our Journal each month. New products are announced from time to time, and information is presented regarding the use of products featured. Other types of ads emphasize services rendered and commodities offered that may be used in your practice, in your office and in your home. You can rely on the statements and facts presented. We include only ethical advertisements in our Journal. Please tell advertisers that you saw their ads in the Journal of the Kansas Medical Society.

Case Report From The University of Kansas Medical Center

Clinical Pathological Conference

Edited by Glen R. Shepherd, M.D., and Mahlon H. Delp, M.D., from recordings of the conference participated in by the departments of medicine, pathology, pediatrics, radiology, and urology, and the junior and senior classes of medical students.

Case Presentation

S. L. H., a 5½-year-old girl, was admitted to KUMC on September 1, 1951, with swelling of the face, abdomen, legs, and knees and ascites which began in July, 1951. She was placed in a local hospital in August, 1951. There was slight fever at the time of her hospitalization but none for two weeks previous to admission to this hospital. Her parents thought she had never had an elevated blood pressure. There had been blood and albumin in her urine. Her weight was 62 pounds on August 1 and 71 pounds on August 25.

The patient had had an illness in February, 1951, which was diagnosed as pneumonia. There were no illnesses between February and July.

Her past history and family history were noncontributory.

Physical examination showed a well developed pale child 5½ years of age with massive edema who appeared chronically ill. The eyelids were edematous and swollen nearly shut. Fundi were negative. ENT was negative. Heart sounds were good. Her PMI was in the fifth intercostal space midclavicular line. There were no murmurs. Blood pressure was 115/80. Both lung bases were dull up to the sixth intercostal space, but the lungs were clear to auscultation. The abdomen was markedly swollen with shifting dullness and a fluid wave. There was four plus pitting edema of the lower extremities with two plus pitting edema of the upper extremities. The skin over the entire body pitted on pressure. Neurological examination was negative.

Laboratory examination showed the following: Voided and catheterized urine specimens showed essentially the same findings. Specific gravity varied from 1.005 to 1.018. Albumin on admission was four plus and varied from a trace on September 5 to two plus on September 7. Sugar was negative. Pus cells in the urine, only four to eight on admission, were 21,000 per cu. mm. on September 8. Red blood cells were numerous in the urine on September 1, but only an occasional one was seen September 7. Occasional granular casts with an occasional pus cast and hyaline cast were noted in every urine examination.

On September 1, the complete blood count showed 3,250,000 red blood cells; hemoglobin 9.0 grams; 10,100 white blood cells of which 59 per cent were polys, 35 per cent lymphocytes, and five per cent monocytes. The NPN was 80 mgm. per cent, serum chloride 80 meq. and cholesterol 1028 mgm. per cent. Total protein was 4.71 grams with globulin 2.02 and albumin 2.69. Nose and throat cultures revealed only normal flora. Urine culture was negative.

On September 5, the complete blood count showed 4,890,000 red blood cells; hemoglobin 13.3 grams; 7,950 white blood cells of which 74 per cent were polys, 20 per cent lymphocytes, and six per cent monocytes. Wassermann was negative. The NPN was 67 mgm. per cent, and the cholesterol 1024 mgm. per cent.

On September 8, the NPN was 73 mgm. per cent, serum chloride was 108 meq. and the cholesterol was 1216 mgm. per cent.

Paracentesis fluid showed a specific gravity of 1.011. Protein was 40 mg. per 100 cc. Thorn test showed 211 eosinophiles initially, dropping to 30 eosinophiles four hours after adrenalin administration.

Hospital course: The patient was placed on bed rest, high protein and low salt diet. Temperature was normal on admission and weight was 69 pounds. The daily urine output was approximately 400 cc. Dysuria was noted by the patient on September 5 and chloromycetin was given, 250 mg. every four hours. The blood pressure remained around 110/70 and her weight about 67½ pounds. She was given two blood transfusions of 250 cc. each. A paracentesis was done on September 7 with 1150 cc. of clear fluid being obtained. The puncture site continued to drain.

She was discharged on September 8 and followed as an outpatient in Kansas City. She was given a mixture of Darrow's solution (potassium and sodium chlorides and sodium lactate) in ginger ale 1:3 to take for several days after dismissal to replace the salt lost suddenly in the ascitic fluid and thus avoid an acute salt depletion syndrome. Her weight on discharge was 65 pounds.

On September 14 she was feeling well except for some leg aching. Salt was continued in her diet and she was sent home to Wichita. Her weight was 57 pounds at that time.

Laboratory work done on September 14 showed

an NPN of 80 mgm. per cent, sodium 127 meq., potassium 4.9 meq., and chloride 108 meq.

The patient was readmitted on September 25. She had ceased having drainage from the paracentesis site nine days before and had gained 13 pounds. The complaint at the time was pain and tenderness in her skin which was quite distended with edema fluid. Although appetite was good previously, vomiting during the night began September 24. A slight possibly productive cough had lasted several days without fever. Urine output had been good.

Physical examination showed a chronically ill child who appeared uncomfortable with a generalized anasarca but not critically ill. The eyes, ears, nose and throat were negative. The neck had slight palpable nodes bilaterally. Chest was symmetrical with bilateral shotty axillary nodes. Dullness and tubular breath sounds were heard in the right apex anteriorly. The lungs were otherwise clear, although the diaphragm was elevated bilaterally. Blood pressure was 110/58. The heart showed normal sinus rhythm with sounds slightly distant but no murmurs. The abdomen was protuberant and exhibited a fluid wave. No pitting edema was noted in the upper extremities but there was four plus pitting edema in the lower extremities.

Laboratory examinations showed the urine to have a specific gravity of 1.024, acid reaction, with one plus albumin and 0.5 per cent sugar. There were many granular and hyaline casts, and 2-4 red blood cells, and 4-6 pus cells per high power field. The complete blood count showed 3,820,000 red blood cells; 11.8 grams hemoglobin; 8,900 white blood cells of which 71 per cent were polys (59 filamented and 12 non-filamented), 25 per cent lymphocytes, and four per cent monocytes. A chest x-ray was taken.

Hospital course: The patient's temperature was 99.2° F. on admission and rose to 102.4° F. by 11:00 p.m. She continued to be uncomfortable. A paracentesis was done at the time of admission, yielding 1200 cc. fluid under pressure. About 10:00 p.m. an erythematous rash developed over the right lower extremity and in a small area on the left thigh. At 4:30 a.m. of September 26 she became more restless and dyspneic, although she was rational and alert. At that time the chest was clear to auscultation despite cyanosis and some flaring of the nostrils. Oxygen was started. Almost immediately respiration became slow and grossly irregular and the patient became unresponsive. A blackish vomitus appeared, and after a few sighing respirations the patient ceased to breathe.

Dr. Mahlon H. Delp (Chairman): Are there any questions of Dr. Fairchild?

Question: Was purpura noticed?

Dr. Robert Fairchild (Pediatric Resident): This rash didn't look like a purpuric rash. It looked like an erythematous splotchy rash.

Question: Was splenomegaly present at any time?

Dr. Fairchild: No.

Question: Were antibiotics administered?

Dr. Fairchild: She had received chloromycetin on her first admission. On her second admission she had no antibiotics.

Question: Was cortisone or ACTH given?

Dr. Fairchild: No.

Dr. Delp: Do you think the patient had any cardiac symptoms?

Dr. Fairchild: No.

Dr. Delp: You didn't think she had congestive heart failure?

Dr. Fairchild: No, we didn't, Dr. Delp.

Dr. Delp: Dr. Tice, you have one x-ray to show.

Dr. Galen M. Tice (Radiology): This was made during the second admission, on the 25th. It shows an opaque right pleural cavity with some relative opacity intermedially. The picture is that of fluid in the pleural cavity, but not enough to push the heart over appreciably. The left lung was relatively clear. This film nicely shows the marked edema of the soft tissues that has been described.

Dr. Delp: Don't you think, Dr. Tice, it is unusual to find fluid on one side only in this case?

Dr. Tice: Yes, unless she was lying on that side.

Dr. Delp: Was this child lying on the right side all the time?

Dr. Fairchild: No, she was lying flat on her back.

Dr. Delp: Mr. Diehl, may we have your discussion.

Differential Diagnosis

Mr. Leonard Diehl (Medical Student): The pneumonia in February could very easily have significance in this case. First of all, I want to rule out some rather unlikely diagnoses that should at least be mentioned. The high blood cholesterol suggests such lipoid diseases as Gaucher's disease. But that doesn't seem to fit at all because there is no record of splenomegaly, or of adenopathy, leukopenia and thrombocytopenia, although these often occur in Gaucher's disease. Furthermore, the cholesteremia wouldn't be as marked as it was in this case.

Niemann-Pick disease is also ruled out for almost the same reasons. Hands Schuler Christian disease is a lipoid disease having cholesterol as the fat involved. However, hepatomegaly, splenomegaly and often pancytopenia occur in that disease but were not noted in this case.

The ascites suggests tuberculous peritonitis. How-

ever, the other findings do not support such a diagnosis.

A nephrosis is a good diagnostic possibility. There are several kinds of nephrosis such as the nephrotic syndrome associated with chronic glomerulonephritis. Whether or not lipoid nephrosis is a separate entity is a point disputed by several authorities. Other nephroses include amyloid nephrosis, luetic nephrosis, and nephrosis associated with the collagen diseases. However, the protocol does not support either amyloid nephrosis or the collagen diseases.

Two other diagnostic possibilities remain. Familial lipemia is a very rare thing. There is no familial history of it in this case. Also, lipemia has a neutral fat elevation in the blood rather than cholesterol, even though the cholesterol is slightly elevated. Finally we might consider congenital polycystic disease of the kidneys. Usually that shows up a little earlier than this with more renal failure earlier than the present case showed. So that leaves us with a discussion of nephrosis.

Glomerulonephritis is a common disease of children. Two-thirds of those affected are under seven years of age. Most seem to be streptococcal in origin. However, about five per cent are pneumococcal. These present a different picture than do the streptococcal ones. In the group where the pneumococcus is the infective agent, there are more marked ascites and a greater element of the nephrotic syndrome. Also, it is usually associated with or develops after an upper respiratory infection or it may follow scarlet fever. This so-called pneumonia in February was about 4½ or 5 months prior to clinical symptoms possibly referable to the kidney. There have been cases where an acute upper respiratory infection was thought to have etiologic significance as long as six months before the onset of the nephrotic syndrome.

The nephrotic syndrome fits well with this clinical picture except that hematuria isn't too common in the nephrotic syndrome. Capillary damage does occur, however. In such a case, one would expect red blood cells in the urine. The erythematous or erysipeloid rash, usually a late sign in the nephrotic syndrome, also is thought to be due to capillary fragility. I didn't see anything in the protocol indicating cardiac failure although it is a fairly common complication of nephrotic syndrome. Sometimes found at autopsy are cloudy swelling of the muscles and loss of striations.

The child usually is not very sick with the nephrotic syndrome. This seemed to be the case in this child. At first she seemed to be fairly alert and wide awake. The absence of real fever, lack of elevation in blood pressure, the high cholesteremia and the elevated NPN are all findings supporting a diagnosis of nephrotic syndrome. I would call this probably sub-acute glomerulonephritis. However, it is hard to say just how long the nephritis had been going on. Many cases develop insidiously after no history of an upper respiratory infection, while only one per cent of those with glomerulonephritis became chronic. Some authors think there may be a different entity or etiology in chronic glomerulonephritis and acute glomerulonephritis. There is some disagreement about that.

Usually there is a more moderate elevation of cholesterol in lipoid nephrosis. Here again, no two authors agree exactly on the definition of lipoid nephrosis. When this patient was readmitted, she probably had an upper respiratory infection which may have been a lobar pneumonia. However, the elevation of the diaphragm on the right side would also suggest atelectasis. And since atelectasis sometimes can occur with allergies or with acute infectious episodes of the respiratory tract, this patient probably had some atelectasis even though the x-ray doesn't show definite evidences of such.

My final diagnosis is nephrotic syndrome with subacute glomerulonephritis. I think you will find evidence of lobar pneumonia with some atelectasis.

Dr. Herbert C. Miller (Pediatrics): I don't expect to do more than give my feelings as to what the terminal event in this child was. I think the possibility of an infection certainly is good. These children are highly susceptible to the pneumococcus. Pneumococcic septicemia, pneumococcic peritonitis, empyema and pneumonia are common in children with nephrosis. It is possible this child developed a sudden overwhelming sepsis and died. It is also possible that this child's pulmonary exchange was considerably hampered by the accumulation of fluid which you see on the right side. That is an intriguing thing because that fluid has been there for some time. She had signs of fluid on the right side at the time of her discharge from her first hospital stay. But it was causing her no trouble and she was getting along fine. The left side had remained clear all this time. I don't know why.

On the last day of life, considerable amounts of fluid were removed from the peritoneal cavity, which should have improved her pulmonary exchange. It should have given her more vital capacity. The presence of large amounts of ascitic fluid obviously impairs the movements of the diaphragm. I suspect that the removal of that fluid mechanically did improve her pulmonary function.

Another thing you have to remember about these children is that they already tend to have low blood sodium concentrations. This child had a sodium concentration of 127 meq. per liter on September

14. There is a feeling on the part of a good many people that low sodium concentrations in certain individuals with nephrosis are perfectly all right. Osmotic pressure within the cells is low and so is the osmotic pressure in the extracellular compartments. As you attempt to increase the sodium concentration, all you succeed in doing is produce edema. So, knowing this child had a sodium concentration of 127 meq. on September 14, one would wonder what the sodium concentration was at the time of readmission. We don't know. The removal of 1200 cc. of peritoneal ascitic fluid obviously is going to lower the sodium concentration in the body by considerable amounts.

One of the things that you do when you take out large amounts of ascitic fluid is to throw individuals into a low salt syndrome. It wouldn't surprise me at all that this girl might have been precipitated into a low salt syndrome at the time of the last paracentesis. This may have caused a rapid accumulation of fluid in the thorax—a more rapid accumulation than is visible in this x-ray—and perhaps reduced her pulmonary function even more than is indicated and might have been the terminal event.

Dr. Delp: I don't want to overemphasize this terminal episode, but Dr. Fairchild mentioned something that might or might not have been significant in your thinking with regard to this patient after oxygen was started. He said the patient began breathing very slowly. Or did you say irregularly?

Dr. Fairchild: Irregularly. Slowly and irregularly.

Dr. Delp: Do you think the oxygen administration had anything to do with it?

Dr. Fairchild: No. Several events happened at the same time. Her head was elevated so that she was sitting practically straight up. The oxygen was started and then her breathing became slow and irregular. She vomited shortly thereafter. I think perhaps it is coincidental.

Dr. Delp: Dr. Reissmann, do you have any thoughts regarding this terminal situation?

Dr. Kurt Reissmann (Medicine): I don't think that it was related to the oxygen respiration. There was no reason to assume that there was decreased carbon dioxide in this patient.

Pathology Report

Dr. Leland D. Stoddard (Pathology): I am not going to emphasize the terminal episode because I think there is little we can contribute in that regard. The important lesions are renal and those are almost the only ones that I propose to discuss. I shall present this case as an instance of lipoid nephrosis, and in the discussion, distinguish lipoid nephrosis from glomerulonephritis. However, I am aware of the arguments against separating the two diseases.

The only satisfactory explanation for the terminal episode we have is the presence of bilateral pulmonary atelectasis. This resulted from bilateral hydrothorax, a part of the anasarca. We looked for such bacterial infections as peritonitis and pneumonia but were not able to demonstrate them.

Regarding the renal lesions, all of the proximal convoluted tubules are dilated. In certain places where the epithelial cells have died and are sloughing off, the tubules are lined by a thin layer of regenerated cells. Swollen tubular epithelial cells contain fat in the cytoplasm (Figure 1). Most of it

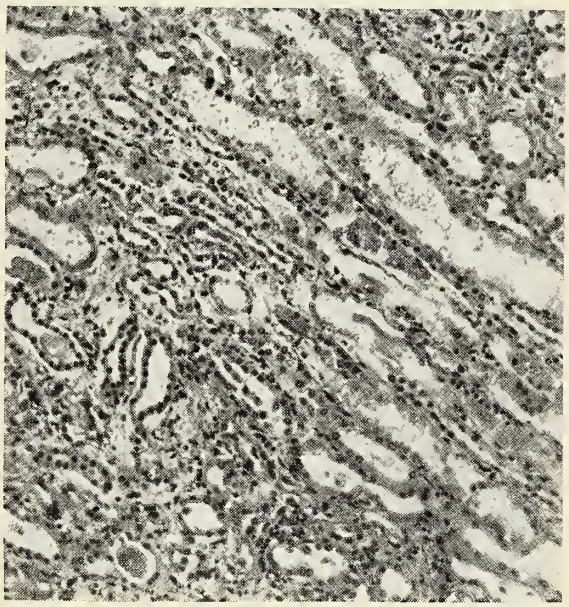


Figure 1. On the right, renal tubules lined by swollen epithelial cells containing fat; desquamated cells in the lumina. On the left, hyaline casts in distal convoluted tubules.

stained by the Sudan method, but very little if any was evident by polarized light. In the interstitial tissue there is edema and a chronic mononuclear inflammatory reaction. That, combined with the swelling of the tubules, accounts for the enlarged, swollen and opaque kidneys. That is all I want to say about tubular lesions because I want to emphasize the glomerular lesions.

Many of the glomerular capillary loops are entirely normal, but in some glomeruli capillary basement membranes are thickened and occasionally reduplicated. There are a few adhesions between capillaries and Bowman's capsule (Figures 2 and 3). There is no abnormality of the arterioles.

What are usually the early renal lesions in lipoid nephrosis? They are just what you have seen, namely, thickened basement membranes, a few capillary adhesions and only focal epithelial proliferation. Functionally, the glomerular capillaries

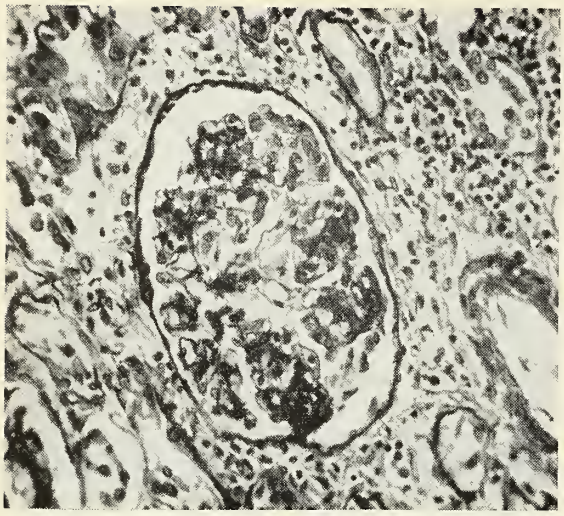


Figure 2. Most glomerular capillary basement membranes are normal. A few near the periphery are thickened. Interstitial edema and a mild interstitial mononuclear reaction between renal tubules.

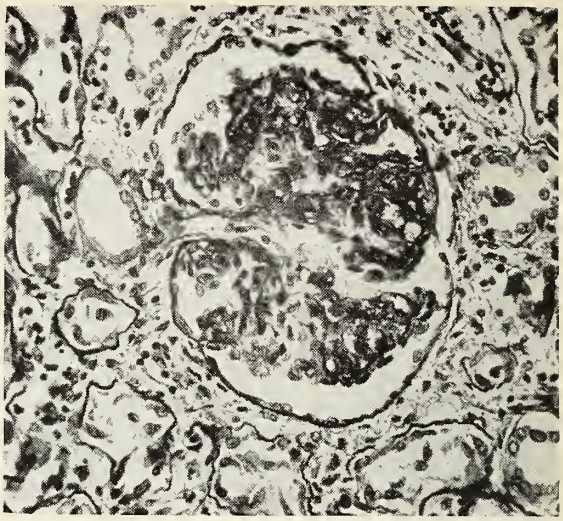


Figure 3. Many glomerular capillary basement membranes are thickened. Above, capsular adhesions and mild epithelial proliferation.

remain patent during the early stages. I think the tubular lesions are not primarily important. They are probably a consequence of increased glomerular permeability and of hyperlipemia. The interstitial reaction is variable. There is usually edema, and there may be a few mononuclear inflammatory cells infiltrating the interstitial tissue.

What urinary findings can we correlate with those lesions? There is some damage to the glomerular capillaries and to their basement membranes so that great quantities of albumin appear in the urine. That is responsible for protein casts. There were many protein casts in these tubules. On occasion even red blood cells filter through and appear in the urine. In this case, red cells were found in the urine, and they are seen in histologic sections of the tubules. The tubular changes are probably responsible for the fatty and cellular casts.

I think these renal lesions and the alterations in renal function explain many but not all of the elements known clinically as the nephrotic syndrome. There is a predictable relationship between lowered serum albumin and hyperlipemia, but I cannot explain that phenomenon.

Certain physiological alterations occur in the acute stage of glomerulonephritis but are absent or inconspicuous in the acute stage of lipoid nephrosis. These are hematuria, azotemia and hypertension. In this case there was not complete absence of hematuria nor of azotemia nor of mild hypertension. But these abnormalities, I should say, were not conspicuous. Dr. Miller, do you agree or disagree with me?

Dr. Miller: Well, I don't know what you mean when you say hematuria is unusual in these children. If they go on to renal insufficiency as about half of them will, all of them will develop hematuria, azotemia, and hypertension.

Dr. Stoddard: I was speaking of the acute stage of the disease.

Dr. Miller: Well, what is the acute stage of a disease that lasts two years?

Dr. Stoddard: The first two, three, or four months.

Dr. Miller: In the first month or two you wouldn't expect to see hematuria, azotemia or hypertension in any degree.

Dr. Stoddard: So although the clinical findings fit lipoid nephrosis rather well, some aspects of this case raise a debated question: Should lipoid nephrosis be separated from glomerulonephritis as a clinical-pathological entity? In considering this problem certain other questions occurred to me.

First, do the early glomerular lesions of lipoid nephrosis differ sufficiently from those of an acute, diffuse, proliferative, exudative, hemorrhagic glomerulonephritis so that they are distinctive and recognizable? Many competent workers have answered that question affirmatively. The endothelial proliferation, exudation, and the crescentic epithelial proliferations of glomerulonephritis are lacking. These changes in acute glomerulonephritis cause glomerular capillary obstruction, which is probably responsible for azotemia and hypertension in the early stages of that disease.

If one can extrapolate from experimental work, these anatomical differences may be only reflections of different immunologic reactions to an injurious agent. That is a proposition which may or may not be valid. But even if it is valid, we are still permitted to separate the two because the reactions to the injurious agent are so different. After all, the reaction to injury is really the significant thing in a disease process.

Second, is there a sufficiently distinct clinical pathological entity characterized clinically by the nephrotic syndrome and pathologically by the glomerular and tubular lesions that you have seen today? My answer to that is yes, there is. Cases of this sort are found. Nevertheless, some confusing cases are difficult to separate from glomerulonephritis clinically.

In addition to lipoid nephrosis, other designations have been given this entity. Ellis, Evans, and Wilson consider the process inflammatory and call the entity Type 2 nephritis. Allen calls it chronic membranous or chronic lobular nephritis. It has been referred to as tubular nephritis. Since an understanding of the pathogenesis of glomerular lesions requires further study, the problem of designation cannot be resolved. If the lesions are thought to be inflammatory, "nephritis" is used in the designation. Thirty years ago Fahr described the glomerular and tubular lesions, considered them degenerative, and applied the term "lipoid nephrosis" to the entity.

Third, does every case presenting clinically the nephrotic syndrome exhibit the glomerular and tubular lesions of lipoid nephrosis? The important part of the question concerns the glomerular lesions. Are glomerular lesions found in every such case? The answer is no, not in all cases. Sometimes the glomeruli are anatomically normal. When glomerular lesions are found, are they always like those illustrated in today's case? Again the answer is no. There are cases that present the nephrotic syndrome in which the glomerular lesions are those of subacute, diffuse glomerulonephritis. These have been called cases of mixed type. Time does not permit further discussion of such cases.

Fourth, what is the evidence that there are cases of lipoid nephrosis in which the glomeruli are normal? The evidence is both pathological-anatomical and clinical. In adults, it seems, very few cases lack the glomerular lesions that we have seen in this child today. But according to Bell, in children younger than 12 the lesions are frequently absent or else thickening of the basement membranes is inconspicuous. Bell's work also indicates that when the childhood disease goes on for longer than a year, glomerular lesions such as you have seen today usually are found. The glomerular lesions in our case today are perhaps atypical findings because the disease had been present only two months and because the child was only five years old.

Fifth, what is the importance of this rather mild glomerular injury when it occurs? In our case today we see that some degree of azotemia and hypertension may develop in the acute stage of the disease. I think these physiological disturbances would have disappeared had the child lived somewhat longer. The real importance of these glomerular lesions is that they may slowly progress and eventually cause renal ischemia, permanent hypertension and azotemia. The anatomical progression can be traced from mere thickening of the basement membrane to glomerular hyalinization of extreme degree. When that happens, hypertension ensues. When hypertension comes along the afferent arterioles become sclerotic. When they become sclerotic the glomeruli are damaged further. As the glomeruli are damaged further, there is greater hypertension. It is a vicious circle that often requires years to be established.

Dr. Delp: As puzzling as this disease has been and as intriguing as it has been, and that is obvious from the comments Dr. Stoddard has already made, there have been some recent stimulating developments in regard to response to new therapy. Dr. Miller, do you wish to comment on the use of ACTH in these cases?

Dr. Miller: ACTH will get rid of the edema temporarily. Every once in awhile it will perhaps do so permanently. Within the first two months of the onset of this disease, 25 to 40 per cent of the children will have spontaneous remissions, so we carry out no treatment of any kind the first two months of the illness. This child did not get ACTH because she already had considerable renal insufficiency with an NPN which was persistently around 80. She was so edematous that I was afraid of making her more sick, simply because ACTH is associated frequently with retention of large amounts of water.

You do get a response with paracentesis. Again this can be only a temporary thing. Anything you do for these children is temporary. Whether they get well or not hinges on something within them, and what that factor is nobody seems to know.

I go along with what Dr. Stoddard has said about the pathology. I have one question which I would like to ask him. That is, can he tell any difference between the terminal kidney of an individual who has gone through a long process of so-called lipoid nephrosis and the terminal kidney of a person who started with acute hemorrhagic nephritis and survived a year or two and then died of renal insufficiency. Can you tell any difference in the microscopic studies of those two kidneys?

Dr. Stoddard: Well, yes, I think you can. There are similarities between the two, but there is one bit of help. The glomerular capillaries in the case of lipoid nephrosis remain patent for a long time, even years. It is a slowly progressive process that narrows these capillaries. But in the case of acute diffuse glomerulonephritis, many glomeruli are injured quickly and are hyalinized early. Also, as the

result of glomerular exudate, epithelial crescents form. In the case of lipoid nephrosis, the kidney may remain large although it is severely scarred, and hardly a functional glomerulus remains after 15 or 20 years. But in the case that began as acute, diffuse glomerulonephritis, the kidney is often quite small, 60 to 70 grams. These are sometimes helpful points. In either case, however, hypertension may develop. The results of hypertension are the same, no matter what the primary cause. They are progressive arteriosclerosis and glomerular scarring.

I am commenting about adults because I actually don't know about children. I am not familiar with good reports on the appearance of the kidneys 15 to 20 years after lipoid nephrosis in early childhood.

Dr. Andrew Mitchell (Urology): The only comment I would like to make on the whole problem is from the point of view of functional studies in a patient with nephrosis. Attempts to study it have produced functional studies as confusing as are the clinical and pathological aspects. This is one of the few diseases in which children will have super normal values for tubular function. Usually we consider a certain maximum tubular function as being 100 per cent of normal, and any changes from that will be a decrease. However, in children particularly, tubular function can change in a matter of two weeks from perhaps 200 per cent of normal down to 10 or 15 per cent of normal and back to 100 per cent of normal with no apparent clinical change to go along with it.

Some of the foremost renal physiologists in the country have said that average figures for renal function can mean absolutely nothing in this disease process and that function studies are of less value in studying this disease than any other renal disease.

Dr. Miller: The last few of these patients on whom we have used ACTH have shown an increase in NPN that is presumably transient. I talked with Dr. Barnett of Cornell a few weeks ago and he said that, in their experience, it was a temporary thing. In our whole experience, it hasn't been so temporary. That made me a little dubious also about treating this girl who consistently ran an NPN of 80.

Summary

The anatomical diagnoses were as follows:

Lipoid nephrosis—lipoidnephrose (Fahr), lipoid nephrosis of mixed type (Bell), Type 2 nephritis (Ellis, Evans and Wilson), chronic membranous and chronic lobular glomerulonephritis (Allen), tubular nephritis.

Generalized anasarca, including ascites and hydrothorax.

Bilateral pulmonary atelectasis.

Moderate cardiac dilatation.

Terminal petechial gastric hemorrhages.

Bibliography

Bell, E. T.: Renal Diseases, Philadelphia, 1947, Lea and Febiger.

Fahr, T.: Pathologische Anatomie des Morbus Brightii in Henke and Lubarsch: Handbuch der Speziellen Pathologischen Anatomie u. Histologie. Vol. 6, Part 1, Niere, Berlin, 1925, Julius Springer. (See pp. 222-236. Lipoid-nephrose.)

Hatfield, G., and Garrod, L.: Recent Advances in Pathology, 5th ed., Philadelphia and Toronto, 1947, Blakiston Co., Chapt. XIII, Bright's Disease. (The only satisfactory account of Ellis, Evans and Wilson's studies: Type 1 and Type 2 nephritis.)

Major, R. H.: Chronic Lipoid Nephrosis in Retrospect, Am. Pract. and Dig. of Treat. 1:683, 1950.

Schwarz, H., Kohn, J. L., and Weiner, S. B.: Lipoid Nephrosis. Observations over a Period of Twenty Years, Am. J. Dis. Child. 65:355-363, 1943.

Wolbach, S., and Blackfan, K.: Clinical and Pathological Studies on So-Called Tubular Nephritis (Nephrosis), Am. J. Med. Sci., 180:453, 1930.

ACTIVITIES OF MEMBERS

Dr. E. J. Ryan, Emporia, spoke on "Endocrine Glands" before the Civic Improvement Club at Hartford recently.

* * *

Dr. R. E. White, Garnett, has been named coroner of Anderson County.

* * *

A feature story about Dr. George M. Gray was carried in the *Kansas City Kansan* last month on the occasion of his 96th birthday. Dr. Gray retired from practice in 1943.

* * *

Dr. H. O. Bullock, Independence, was speaker at a meeting of the Child Study Club in that city recently, discussing "New Developments in Preventive Medicine."

* * *

Dr. William Brownell has returned to Wichita after completing a postgraduate course in ophthalmology at the University of Texas and is now practicing in association with his father, Dr. Morton E. Brownell.

* * *

Dr. Philip W. Morgan, Emporia, has been named a member of the Committee on Education and Information of the American Heart Association.

* * *

Dr. William B. Scimeca, Sedan, began a four-year fellowship in surgery at the Mayo Clinic, Rochester, Minnesota, on April 1.

* * *

Dr. Dale C. McCarty, Medicine Lodge, recently enrolled for postgraduate work at the Cook County Graduate School of Medicine, Chicago.

* * *

Dr. C. H. Benage, Pittsburg, was one of the speakers at the convention of the Kansas Pharmaceutical Association held in Topeka in March.

Dr. R. W. Lance, Moline, has been ordered to active duty with the Army medical corps.

* * *

Dr. Lottie F. Law, who has completed 50 years of medical service, was honored by Hill City on Sunday, March 30. About 2,000 people were present for the occasion. Feature stories on Dr. Law's career were carried in many papers including the *Knasas City Star, Hill City Times, Topeka Capital, Hays Daily News, Rooks County Record* and *Morland Monitor.*

* * *

Dr. C. S. Adams has been named health officer of Stafford County for the unexpired term of the late Dr. J. C. Ulrey.

* * *

Dr. Mary T. Glassen, Phillipsburg, was speaker at a meeting sponsored by the Central School P.T.A. at Pratt on March 31.

* * *

Dr. Thomas G. Orr, of the University of Kansas Medical Center, gave the 19th annual E. Starr Judd lecture at the University of Minnesota on March 20. His subject was "Some Observations on the Treatment of Carcinoma of the Pancreas."

* * *

Dr. Homer S. Foutz, Minneapolis, was the subject of a feature story printed in the *Minneapolis Messenger* on March 20.

* * *

Dr. Bernard A. Brungardt, Salina, now a major in the Army medical corps, received mention in a dispatch by Keyes Beech from the 51st Fighter Wing in Korea. The reporter quoted Dr. Brungardt, a flight surgeon, on treatment for paralysis sometimes suffered by jet pilots while flying at extremely high altitudes. Dr. Brungardt has tried reducing pilots' nitrogen intake by having them breathe nothing but pure oxygen for 10 to 15 minutes before take-off. Reports from pilots indicate that this has helped, but studies are continuing.

* * *

Dr. W. K. Walker, Cedar Vale, has announced plans to spend mornings in Sedan in the office of Dr. William B. Scimeca, who is taking postgraduate work.

* * *

Dr. Vernon M. Winkle, Kansas City, has been elected vice president of the Middle States Public Health Association, of which he is a charter member.

* * *

Sunday, May 4, has been named "Dr. Haskins Day" in Kingman in honor of Dr. H. E. Haskins who has been practicing there for 50 years.

* * *

Dr. Donald W. Selzer, Manhattan, reported for active duty with the Army at Brooke Medical Center, Texas, on April 22. He had planned beginning a fellowship at the Mayo Foundation on April 1, and has been notified that he may accept the fellowship on the completion of his Army service.

* * *

Dr. K. L. Lohmeyer, Emporia, spoke on "New Medicine and Methods of Treatment" at a recent meeting of the Lyon County Practical Nurses' Association.

* * *

Dr. Creighton A. Hardin and Dr. David W. Robinson, of the University of Kansas Medical Center, are authors of a paper, "The Surgical Treatment of Extensive Skin Cancer of the Lower Eyelid," published originally in this Journal and abstracted in the March issue of *Digest of Ophthalmology and Otolaryngology.*

* * *

Dr. James A. Wheeler, Newton, was speaker at a meeting of the Wichita Rotary Club.

* * *

Dr. Herbert L. Songer, Lincoln, announces that Dr. Harold Smith, formerly of Des Moines, is now associated with him in practice. Dr. Smith is a graduate of the University of Kansas School of Medicine.

* * *

Dr. A. W. Fegtly and Dr. C. W. Miller, Wichita, attended the annual meeting of the American Academy of General Practice in Atlantic City last month. Dr. Fegtly served as chairman of the Committee on Constitution and By-laws of the House of Delegates and Dr. Miller served on the Committee on Membership.

* * *

Dr. Galen M. Tice, head of the department of radiology at the University of Kansas School of Medicine, was guest of honor at a dinner given in Kansas City recently by all of the former residents who served under him and the four current residents.

* * *

Dr. Frederick H. Chard, Wichita, spoke on "Industrial Dermatitis" at a recent meeting of the Central States Conference of National Association Claimants' Compensation Attorneys. The meeting was held in Wichita.

The average person in the United States uses about six pounds of salt and 95 pounds of sugar each year as seasoning.

Only 42 cases of smallpox were reported to the Federal Security Agency in 1951.

DEATH NOTICES

JOHN CALVIN ULREY, M.D.

Dr. J. C. Ulrey, 75, who had practiced in St. John since 1920, died February 24 in Orlando, Florida, after a week's illness. He was an active member of the Stafford County Medical Society. Dr. Ulrey was graduated from Kansas Medical College, Topeka, in 1906 and began practice at Windom, later moving to St. John.

* * *

ALEXANDER C. CRAIG, M.D.

Dr. A. C. Craig, 69, an active member of the Shawnee County Society, died of a cerebral hemorrhage while en route to his office in Topeka on February 29. He was a graduate of Northwestern University Medical School, Chicago, with the class of 1907 and began practice in Denver, specializing in surgery and serving on the faculty of the University of Colorado School of Medicine. Dr. Craig moved to Topeka in 1934 and retired from active practice. He resumed practice in 1943 and continued active work until his death.

* * *

CHARLES NAPOLEON PETTY, M.D.

Dr. C. N. Petty, 83, Altamont, an honorary member of the Labette County Society, died at the home of his daughter in Bird City on March 16. Until he became ill, a month before his death, he had practiced continuously since his graduation from Kansas City Medical College in 1896. With the exception of a short period during World War I, when he served in the Army Medical Corps, he practiced only in Altamont.

* * *

PHILIP JOHNSON CLARK, M.D.

Dr. P. J. Clark, 36, an active member of the Central Kansas Society, who had been practicing in Hays, died March 23 at Kansas City. He had been ill with leukemia for about six weeks. He was graduated from the University of Chicago School of Medicine in 1940, and during the war served with the marines in the South Pacific. After a three-year surgical residency at the University of Kansas School of Medicine, he began practice in Hays, where he was associated with the Eddy Clinic.

* * *

SETH LEROY COX, M.D.

Dr. Seth Cox, 71, who lived in Topeka before his retirement in 1950, died in Seattle, February 26. A graduate of Jefferson Medical College, Philadelphia, in 1912, Dr. Cox was interested in diseases of the chest and came to Kansas in 1919 as medical director of the Kansas Tuberculosis Association, a position he held until 1928. He later went to Seattle to work with the Washington Tuberculosis Association, returning in 1943 to be executive secretary of the Kansas association. He was a member of the Shawnee County Medical Society.

* * *

EARL LEROY VERMILLION, M.D.

Dr. E. L. Vermillion, 56, an active member of the Saline County Medical Society and a past president of that group, died in Salina, April 7. He was a graduate of the University of Kansas School of Medicine in 1917, and began practice in Salina in 1919. He was the son of a physician, the late Dr. Clinton D. Vermillion, who practiced for many years in Tescott. Another member of the family in the medical profession, Dr. Dale D. Vermillion of Goodland, survives.

* * *

FRENCH MILES SMITH, M.D.

Dr. F. M. Smith, 73, a physician at Lyndon for 43 years, died April 19 at a Topeka Hospital. He was an active member of the Osage County Medical Society and was serving as secretary at the time of his death. He was graduated from the University Medical College of Kansas City in 1909, and immediately afterward began practice in Lyndon, specializing in eye, ear, nose and throat work.

* * *

JOHN BENJAMIN NANNINGA, M.D.

Dr. J. B. Nanninga, 53, who had been on the staff of the Bethel Deaconess Hospital and Clinic at Newton for 12 years, died of a heart attack on April 18. He was graduated from Rush Medical College in 1928, and after his internship in Chicago went to Germany for a year's postgraduate work in pathology at the University of Hamburg. For several years after his return to this country he was associated with the department of research at the University of Kansas School of Medicine, then going to Goessel to Bethesda Hospital. He began work on the staff at Newton in 1940, and at the time of his death was serving as director of the clinic.

Senior Thesis from the University of Kansas Medical School*

Pleural Effusion**

Vale Page, M.D.

Temple, Texas

Certain Aspects of Pathological Physiology

I. *Pleural Effusion*

A. Pathogenesis, Etiology, Anatomical and Physiological Factors.

Historically this is a subject with which Hippocrates and Galen were acquainted, and a subject about which many words have been written. Here I wish to consider first physiology and pathogenesis of the various causes of pleural effusion.

Barnwell[3] states that "in a loose sense the term 'pleural effusion' is used to denote any collection of fluid in the pleural cavity, regardless of origin." More restrictedly he limits the term to inflammatory nonpurulent exudates appearing in the pleural cavity. Throughout this paper I have more or less held to the former designation, unless otherwise specified. Also for purposes of definition and clarification I should like to offer Boyd's[4] conception of transudate as opposed to exudate. He writes that a fluid transudate has a specific gravity below 1.018, and a protein content below four per cent. From author to author there seems to be a slight variation from these figures, but none were far removed.

There are various and sundry explanations for the different phenomena cocurring in pleural effusions. It is well to emphasize initially several simple facts. Normally the thoracic cage and viscera physiologically compensate to an insult usually in the following order: 1. Lungs—collapse or overexpand; 2. Mediastinum—shifts or becomes fixed; 3. Diaphragm—elevates, drops, or becomes immobile; 4. Thoracic cage—becomes fixed as by muscle splinting.[1] Pressure relationships of the above mentioned viscera to mechanisms of respiration and circulation are of uppermost importance in any discussion of thoracic physiology. According to Sodeman,[2] approximate intrapleural pressures (on quiet recumbent breathing) are —7 cm. water on inspiration to —2 cm. water on expiration. This negative pressure is an important factor in the filling of the vena cava, pulmonary veins, and cardiac auricles. It is not illogical then to reason that with increased intrapleural pressure (toward the positive side) there comes about an increased systemic venous pressure, thereby resulting in passive congestion.

In the normal lung there is a small amount of fluid "lubricating" the pleural surfaces; this balance is kept by a constant flow mainly from the visceral pleura, and such fluid is reabsorbed by the parietal pleura and is thus drained systemically.[1] This does not go so far as to say that the reverse cannot be true. For it is well known that encapsulated intralobar effusions must be drained by the visceral pleura since there is no parietal pleural connection in this situation.

Before considering specific etiological agents there are, first, some interesting physiological factors which influence the intrapleural pressures, and secondly, a number of anatomical and physiological interrelationships in the mechanism of pleural effusion.

In atelectasis resulting from a total bronchial obstruction, inspiration produces a highly negative pressure. The latter may cause elevation of the diaphragm or shift of the mediastinum. Bronchial asthma represents a partial obstruction in both inspiration and expiration; a very wide swing of pressure is observed here because of the inability of the lung to follow quickly the thoracic respiratory movement. Emphysema denotes a lessened elasticity of the lung tissue resulting in intrapleural pressures hovering close to atmospheric pressure. The presence of air or fluid in the pleural cavity lessens the negative intrapleural pressure, and displacement may result according to the amount of air or fluid concerned.[1]

Aside from these above mentioned factors affecting intrapleural pressures, there remain numerous facets also to be considered such as lymph drainage of the lungs, common factors conducive to pulmonary edema, the role of vasomotor control, and others beyond the scope of this paper.

This is not to propose a rigid classification of the causes of pleural effusion, yet it is an attempt to produce a workable outline whereby the common etiologies can be considered concomitantly with ensuing desideratum. Experiments have suggested that some abnormality of the pleura must exist before effusion occurs. Some of those abnormalities involve impaired absorption from the following: inflammation with thickened pleura; edema of the pleura; fibrosis following inflammation; obstruction due to neoplasms; passive congestion; and pneumothorax which in an unknown manner reduces ab-

*This is one of 11 senior theses selected for publication by the Editorial Board from a group of 15 judged the best by the faculty of the University of Kansas School of Medicine.

**Thesis written while the author was a senior student at the University of Kansas School of Medicine. Dr. Page is now serving his internship at the Scott-White Clinic, Temple, Texas.

sorption of fluid by 25 to 50 per cent. The following is outlined by Myers and McKinley[1] with a few additions:

I. Pleurisy with effusion: A. Tuberculosis; B. Primary or metastatic carcinoma of the lung; C. Rheumatic pleurisy; D. Brucella; E. B. tularense; F. Colon-thyroid group; G. Actinomycosis; H. Amebiasis.

II. Sterile inflammation of the pleura: A. Pneumococcus (including lung abscess); B. Atypical pneumonia; C. Sympathetic; D. Pulmonary infarction; E. Traumatic-subpleural hematoma; F. Post-irradiation pleurisy with effusion; G. Neoplasms.

III. Non-inflammatory pleural fluids: A. Congestive heart failure; B. Constrictive pericarditis; C. Superior vena cava obstruction; D. Cirrhosis of the liver; E. Renal disease; F. Nutritional deficiencies; G. Anemia.

Only a selected few of these items will be discussed in the following paragraphs. Moreover hemothorax, usually of traumatic origin, and chylothorax, which can be caused by trauma or neoplasms (Hodgkin's), are two facets of pleural fluid study which are not included in this paper. As previously stated, tuberculosis will be related in chapter II, since it is considered the most common cause of pleural effusion up to the age of 40. Beyond 40 neoplastic causes are most common.

In a series of 41 cases Timer and Olsen found pleural effusion associated with primary neoplasms in the following order: 1. Intrathoracic; 2. Neoplasms of the breast; 3. Tumors of the ovary. Avenues of neoplastic spread to and within the lungs include blood, peripheral lymphatics, and via the diaphragmatic lymphatics. Laurie[7] relates that malignant states within the chest are most often associated with hydrothorax because of a lymphatic or venous obstruction. By various pathological mechanisms these growths may result in a pleural effusion. First, a pathological tumor nodule grows under the pleura, causes an irritation in the overlying pleura and hence an effusion comes about. In fact nearly all pleural effusions caused by neoplastic processes develop because of the inflammatory reaction initiated as new growths invade the pleura.

Sometimes a mediastinal neoplasm will be so invasive as to obstruct the pulmonary lymphatics and occasionally the veins without an actual pleural involvement (Hodgkin's disease, or a lymph borne carcinoma). The backed up lymph in overloaded dilated channels leaks through the visceral pleura. Also in a superior vena cava or vena azygos obstruction the same principle of back-pressure is involved but disrupts the normal absorptive processes through the parietal pleura. A true exudative pleurisy may occur in primary mesothelioma,[7] but such instances are considered rare. Furthermore, effusion may come about via vegetative and thrombotic emboli, from malignant cells metastasizing to both subpleural tissues, and by cortical zone involvement of the lung with dissemination peripherally.

The so-called "sympathetic" effusion results from the anatomical fact that the capillaries of the pleura and peritoneal surfaces of the diaphragm intercommunicate. In addition, when chronic adhesions grow between the parietal and visceral pleura, concomitant lymphatics grow across and connect the lymphatics of these pleurae and the diaphragm or pericardium. Such a statement is indicated by the unusual sites to which the lymph of the lung is drained. The latter is verified by the accumulation of carbon picked up from the pulmonary alveoli and found in such nodes as the axillary intercostal, internal mammary, or superior gastric.[8]

There is an intriguing entity called Meigs's syndrome[9] which is a pleural effusion resulting from an ovarian fibroma. According to Anderson,[10] this is a so-called edematous fibroma usually associated with ascites and hydrothorax. The latter is explained by a transudation from the tumor itself with transmission through the diaphragmatic lymph channels, artificial blockage of which was shown to prevent the development of hydrothorax.

It should be emphasized that malignant growths are the most common cause of sanguinous exudates. Effusions caused by malignancy are also characterized by rapid accumulation, and by the fact that they are usually exudates. Pleural effusion arising in a patient with brain tumor should suggest to the clinician that bronchogenic carcinoma is responsible for both pleural and cerebral metastases. As would be expected the most difficult differential diagnosis is with tuberculous effusion.

Effusion accompanying rheumatic fever does not seem to be common. The latter is regarded as a systemic disease, and among other tissues it attacks serous membranes selectively, e.g., synovial membranes, endocardium, pericardium, and occasionally the pleura. It is proposed that the infection spreads apparently by direct extension or via the lymphatics.[1]

A serious problem arises in any patient with pleural effusion because of indecision accompanied with incomplete knowledge of harm or good effected by tapping the pleural cavity. Almost assuredly one must withdraw fluid for diagnosis if all other means fail, and in cases where the patient is dyspneic or his life may be at stake. When empyema occurs secondarily to a streptococcus lung infection, the effusion is immediate and occurs usually at the height of the parenchymal involvement. At this par-

ticular time the vital capacity is most greatly reduced. A tap may be needed to increase the vital capacity, yet there is danger of mediastinal shift or perhaps collapse of a lung. Open drainage at this time would be dangerous because the lung may not be adherent to the chest wall and fixation of the mediastinum may not have taken place. Probably aspiration is indicated for relief of the patient.

On the other hand, an empyema developing from a pneumococcal infection develops late in the course of the parenchymal involvement when the vital capacity is practically normal. Actually an empyema may represent a late manifestation of effusion whereby pus collects in the intrapleural space.

A choice of three methods of draining—aspiration, closed drainage, and open drainage—is based on the following factors: 1. Duration of the pleural infection; 2. Consistency of the pus; 3. Vital capacity of the patient. In most instances resection of a part of a rib with open drainage is recognized as the most satisfactory method. The problem of aspiration in tuberculous effusion will be discussed later.[11]

Before concluding the remaining points on physiology of effusion, a few remarks will be made concerning the chest pain related to pleurisy with effusion. Boyd[4] believes that the principal factor in the production of chest pain from pleurisy is tension which, in turn, is caused by stretching of the sensitive inflamed parietal pleura during breathing. Hence, the reason for strapping a chest to prevent pain is to limit movement and not to prevent friction. He states unequivocally that chest pain is not caused by friction of the inflamed and roughened surfaces, for the friction rub may still be audible after pain has discontinued, and that pleural pain may come on even after a pneumothorax. Contrary to this belief, Myers and McKinley[1] consider friction the most important element and credit tension to causing a still lesser degree of pain.

Pleural effusion is regarded by Soresi[12] as the most valuable natural process of defense. He writes, "We can therefore logically assert as an incontrovertible fact, that the accumulation of fluid in the pleural cavity puts the parietal and visceral pleura at rest." According to Barnwell,[3] the lungs float in the pleural fluid which lies in the bottom of the pleural cavity. The development of an effusion allows collapsing of a portion of the lung tissue, but not necessarily commensurate with the same volume of fluid. By compensatory means, intrapleural pressure is increased but remains below that of atmospheric pressure until the pleural cavity is approximately half filled with fluid. It is at this stage in particular that Soresi believes the effusion to be a protective mechanism and that it should not be removed except to relieve dyspnea.

What is the initial reaction of the pleura to infection, and how does the accumulation of fluid take place? This is a broad question. One should realize there is first a formation of thin watery effusion. The total pleural area may be involved, but because of the ability of the pleura to localize, as well as gravitational influences, fluid accumulates posteriorly and at the base of the lung.[11] As the fluid collects here it is pushed up by the pneumatic pressure of the lung into the shape of a cone. The more common radiological aspects will be dealt with in the next section.

Clendening and Hashinger[13] emphasize that the triad of signs—dullness, absence of fremitus, and absence of breath sounds—is found only in the back. They believe that the sign of "the fluid moving on change of position of the patient" must be discarded since air must also be present to make the sign a trustworthy one. Interestingly enough, Grocco's triangle is tagged "completely passe" as a diagnostic sign by the latter authors who claim that the sign is present only in massive effusion or in effusions along the vertebral border. Moreover, Skodiac resonance is said by the same writers to be the easiest of the accessory signs to demonstrate, but adds little to the diagnostic armamentarium and "should be forgotten."

B. Roentgenological Considerations.

Friedrich Müller was very much aware of the x-ray-physical diagnosis interrelationships when he wrote the following paragraph quoted from Dr. Major's text:[14] "Many physicians have the idea that the art of percussion and auscultation are antiquated because they have been replaced by examination with the roentgen rays and the tuberculin test. They are, however, more necessary today than they were a hundred years ago, and they have not been superseded by the roentgen rays, for percussion and auscultation are now more necessary than ever, in order to interpret properly our x-ray pictures.

"The art of percussion and auscultation has gained greatly in accuracy, since the findings can be controlled by the roentgen pictures. Formerly the correctness or the errors of percussion could be demonstrated only by autopsy. Today we can study the accuracy of our results in percussion on the living man and under natural conditions. It is also a great blessing that the roentgen plates have shown up the errors of an over-refined technique of percussion and auscultation."

In bold contrast to the foregoing, Custer and Evans[15] write that physical signs are relatively unimportant compared to modern roentgenography. Because of the frequently seen complication of effusion following artificial pneumothorax, one may

fall into the error of assuming that fluid in a chest always appears on the film as a dense and sharply demarcated opacity and in the dependent part of the chest. This is by no means always true, for air often is not present above the fluid and no sharply horizontal outline can necessarily be made out.

Rothstein, Emil, and Landis[16] write that the most common configuration for effusion to assume is curvilinear with the concavity downward and outward extending up along the axillary border of the chest. These same writers emphasize that such a localization of fluid may be confirmed on physical examination as the "curved line" of Damoiseau and the "S" line of Ellis. Clendening and Hashinger discard the latter finding as a physical diagnosis sign.

According to Katz,[17] less than 400 cc. of fluid cannot be demonstrated by physical examination or ordinary posterior-anterior chest film. Particularly in these instances is a lateral film of the chest required to recognize fluid in the lower posterior aspect of the pleural cavity. It should be further emphasized that in searching for fluid, fluoroscopic and roentgenographic examinations in a variety of positions are mandatory for proper evaluation, especially with reference to the frequent atypical conformation of chest fluid. A common type of such atypical pleural effusion is that which accumulates in the paramediastinal pleural space. In this particular study all of the paramediastinal effusions were tuberculous in origin. A mediastinal pleurisy secondary to pneumonia is found in one to two per cent of routine chest films in children under one year of age. These same shadows may be mistaken roentgenologically for atypically appearing thymus gland shadows.[18]

Periapical effusions are rare, occur mainly in children, and are almost invariably empyemas.[18]

A sudden appearance of an unexplained elevated leaf of the diaphragm plus an additional less conspicuous finding of minimal blunting of the costophrenic angle is suggestive of an infrapulmonary effusion. When these opacities are examined with the fluoroscope, the effusion usually moves synchronously with the diaphragm. Pneumoperitoneum may be used as a diagnostic technique here as well as in kidney or liver neoplasms. Oral citrocarbonate may be used advantageously to demonstrate the left diaphragmatic level. With the effervescence and filling of the stomach with gas, a clearer delineation between fluid level and diaphragmatic level may be possible. The subject of hemothorax is not detailed here, but like serous effusion lends itself to x-ray diagnostic techniques, and for the sake of completeness it cannot go entirely unmentioned. Blood in the pleural space does clot, but it has been hypothesized that apparently the blood usually remains fluid due to the defibrinizing action of respiratory movement. Malignant neoplasms account for 65-85 per cent of hemorrhagic pleural effusions. A second most common cause has been found to be pulmonary infarction. The more rare causes of hemorrhagic pleurisy are pneumonia, cirrhosis of the liver, leukemia, and spontaneous pneumothorax.[18]

II. *Tuberculosis and Pleural Effusion*

A. Adult Manifestations

Within the past few months a treatise has been written by Falk[19] whose purpose in writing was to emphasize the importance of pleural effusion as a clinical manifestation of active tuberculosis. Sibley[20] pleads further that even small effusions, regardless of how slight, are potentially as dangerous as the most massive effusions. Most commonly the peak of incidence is age 20, with a general range of 15 to 35.

The mechanism of tuberculous pleural effusion is considered by most writers to be a reaction subsequent to the development of tuberculin sensitivity during and following a primary tuberculous infection. That a sensitized pleura is necessary for development of effusion has been proved by Patterson,[22] Lemon,[23] and others. According to Laurie,[7] Falk,[19] and others a primary subpleural nidus occurs which results in the primary complex and sensitizes the individual to tuberculin. From this primary focus it is assumed that there is an extension of tubercle bacilli to the pleura, or the caseation and discharge of a subpleural focus into the pleural sac. Thompson[21] relates that fluid tends to occur on the same side as the pulmonary lesion. The latter occurred more often on the right side as attested by all observers from the time of Ghon onward. Of course other sources of infection may be the lung parenchyma, hilar nodes, or more rarely erosion of a dorsal spine.

When contralateral effusions occur, they may be explained by extension across the mediastinal lymph channels and by the fact that the most distal of the affected nodes is often the most heavily infected. A hematogenous dissemination is to be considered in bilateral pleural effusion, which sometimes is the first evidence of a fast moving generalized miliary tuberculosis. Laurie adds that extrathoracic tuberculosis complications due to hemic spread are almost seven times as common in bilateral effusions as in unilateral effusions. In some cases of miliary tuberculosis, spread may so overwhelm the body that no effusion results.[24] Scherf and Boyd relate that bilateral hydrothorax is an early and regular occurrence in acute hemorrhagic nephritis and signifies general capillary damage.[32]

There is the question as to why effusions do not

occur more often in chronic tuberculosis. The state of allergy is enhanced in the tuberculous patient near the time of the primary infection. This may account for the frequency of massive and sometimes polyserous exudative reactions. In contrast, with the passage of time decreasing the allergic intensity and the tendency toward formation of adhesions, the occurrence of serous effusions in chronic pulmonary tuberculosis is uncommon.

The first great exponent of tapping the pleural cavity was a Frenchman by the name of Trousseau who, in the latter part of the 19th century, led the French school into first realizing the frequent relationship between a collection of clear fluid in the pleural cavity and early tuberculosis.[24] Falk states that laboratory studies of aspirated chest fluid are not reliable criteria for diagnosis when only 20 to 30 cc. of fluid are taken. He pleads for removing at least 500 cc. of fluid for bacterial study for which he claims a much higher percentage of positive results. In explaining the negative pleural fluid finding in certain cases, he suggests the possibility of a filterable atypical tubercle bacillus, antigen-antibody reaction, or a paucity of bacilli.

Some interesting work on the relationship of pleural fluid sugar to pulmonary tuberculosis was done by Gelenger and Wiggers.[25] However, such correlations were previously noted by Pinner[26] and Gruner.[27] The former authors in their studies considered 30 mg. per cent pleural sugar content as diagnostic of tuberculosis; 30 to 60 mg. per cent was thought presumptive, and above 60 mg. per cent was said to be non-tuberculous. This was a small series, however, and this hypothesis still remains to be substantiated. As a further aid in diagnosis, a history of repeated aspirations of large amounts of fluid is less apt to mean tuberculosis than Hodgkin's disease or chylothorax. A rapidity in progression from a clear fluid to pus may be helpful in diagnosis. In pneumonia such a change is a matter of days, in tuberculosis weeks and months, and in actinomycotic fluid somewhere between pneumonia and tuberculosis.

It is estimated that 15 per cent of tuberculosis patients have had a previous pleurisy with effusion. In the United States the incidence of tuberculosis following pleurisy with effusion is about 25 to 35 per cent.[19, 28] Schuman's study of 214 patients showed tuberculosis more common in the male than in the female and that effusions occurred (two to one) more frequently in males.[29] In Maclean's studies[24] he states that the most important single factor in the possible development of tuberculosis is the duration of pleural fluid. Other less important criteria are size of effusion, duration of fever, and age of the patient.

B. Effusions in Childhood

The mechanisms described are apparently different from those in childhood where pleural effusion with primary infection is infrequent. Maclean[24] submits that the essential factor may be the larger initial dose of infection which adults tend to receive, so that the primary focus sustains a longer activity and allows hypersensitivity to develop while the pleura is invaded by tubercle bacilli resulting in effusion. In addition, he postulates that adults will be infected with larger droplets which can penetrate to the larger terminal adult bronchioles, and that the ciliated bronchial epithelium is more efficient in children. In a study of 393 children under the age of two with tuberculosis, Hardy and Kendig[30] found an incidence of 313 per cent of pleurisy with effusions, which indicates that it is not a rarity. Smithers[31] summarizes the important aspects in childhood effusions as follows:

1. The immediate prognosis in children having sterile effusions is very good (the more remote prognosis is not so satisfactory).

2. Tuberculosis is a much less frequent sequela of pleural effusions in children than in adults, but occurs sufficiently often to necessitate prolonged treatment and careful supervision.

3. The dangerous period to the child is the first four years following the effusion and particularly the first year.

4. The most common sequelae in children appear to be pulmonary tuberculosis and spinal caries.

III. *Heart Failure and Right-sided Hydrothorax*

There are many theories and attempts at explanation for the preponderance of right-sided hydrothorax with heart failure, but few if any incontrovertible instances of proof of such theories have been offered. At best one can only review the numerous factors which various authors have claimed play a role in the production of selective hydrothorax.

McPeak and Levine[33] have written the most complete analysis of this subject, and what follows is a reproduction of their studies plus additions from a few other writers.

In 1930 there was produced some experimental evidence contending that a greater relative degree of negative pressure existed in the right pleural space as compared to the left. Such a state of affairs was upheld by other theories on the basis of the anatomical relations between the thoracic aorta and the hemiazygous vein with its valves. In studying pulmonary edema, Weiss[34] concluded that edema began usually in the right lung[36] and remained more

intense on this side. Perhaps the presence of more pleural surface on the right may have some bearing upon the increased congestion here. Bedford[35] found left hydrothorax in 18 of 38 cases with left heart failure, and right hydrothorax alone in 9 of the 38 cases. This matter of left-sided predominance will be discussed later.

Pathogenesis of hydrothorax resolves about the anatomical fact that the pleural sacs have both a pulmonary and a systemic venous drainage. Therefore, both drainage systems must be considered in engorgement and production of hydrothorax. In right heart failure where one finds a severe venous engorgement of the systemic circulation, expected hydrothorax frequently does not occur. Even in tricuspid disease with failure, ascites is an early finding and hydrothorax occurs late. So the reverse of the expected occurs, and the marked clarity of the lung fields is borne out roentgenographically. It has been concluded that the essential factor in production of hydrothorax is pulmonary engorgement, and that with efficient drainage of the lungs by the left heart a heightened systemic venous pressure does not in itself cause pleural transudation.[37] Added factors may include the effect of a swollen liver which might interfere with diaphragmatic movement resulting in impairment of lung circulation in the right base.[36]

Bedford and Lovibond also sound a warning note that clinical observation has tended to over-emphasize the preponderance of right hydrothorax, perhaps by confusing it with liver dullness. Left hydrothorax predominates in hypertention and aortic disease with normal rhythm, although with fibrillation right-sided hydrothorax is most frequent. The same situation is seen in rheumatic heart disease with and without fibrillation.[36] Scherf extends the discussion to state that hydrothorax is bilateral or right-sided except under certain specified conditions, such as obliterative pleurisy on the right, left pulmonary infarction, or pericardial effusion, when a left unilateral effusion may occur.

The following factors which may tend to localize an effusion in heart failure are gleaned from various sources for the reader to peruse and weigh their validity in his own thinking:

1. The visceral pleura is the principal source of exudation.[37]

2. Peculiar environment of lungs and pleura plus increased susceptibility of capillaries to anoxia.[5]

3. Right lung is 10 per cent greater in volume than the left.

4. Extra lobe on the right, larger extent of circulation on the right, and increased pleural surfaces on the right.[38]

5. Diseases of lung or pleura.[33]

6. Pleural adhesions.[8, 33]

7. Impaired elasticity of the lungs and impaired respiratory movement.[5]

8. Enlarged auricles obstructing filling of heart on right side, and cardiac enlargement resulting in direct compression of lung tissue.[33]

9. High incidence of right hydrothorax with presence of auricular fibrillation.[36]

10. Inefficient lymphatic drainage of lungs through right lymphatic duct.[5, 41]

11. Left lung may receive greater relief from collateral circulation.[33]

12. Thrombosis of blood vessel. Obliteration of pleural space.[32]

13. Absorptive activities of visceral pleura as evidenced by resolution of localized interlobar pleural effusion.[1]

14. The weight of the heart produces a higher negative pressure in the uppermost side when the patient lies on his side.[3]

15. Higher venous pressures in right lung because of increased distance blood must be lifted to reach the heart, especially in cardiacs who favor the right lateral decubitus position.[39]

In summary it appears that in all heart disease, right hydrothorax predominates over left hydrothorax. Auricular fibrillation and rheumatic heart disease increase the liklihood of right hydrothorax, while left heart failure augments the chances for a left-sided hydrothorax.

IV. *Miscellany*

A. Treatment

In this section I wish to include those points of interest of more recent origin which would not have added materially under the topics already discussed.

Through the evolution of various treatments, some interesting reflexes were discovered experimentally and during penetration of the human pleura with a pneumothorax needle. Best and Taylor[40] describe an entity called "pleural shock" consisting of a marked slowing of pulse, profound fall in blood pressure, and a possible fatal syncope following puncture of the chest wall. This is an important consideration because it may be confused with air embolism. Experimentally Capps and Lewis[41] produced in dogs a similar cardio-inhibitory and vasomotor reflex by irritation of the visceral pleura. They suggest the advisability of replacing fluid with slightly less air to prevent such reflex manifestations.

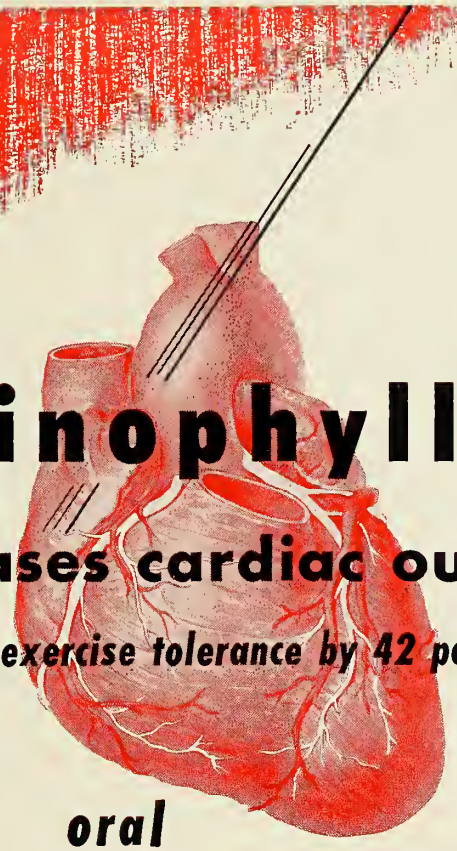
Whereas thoracotomy has superseded most other methods of treating an infected effusion, some re-

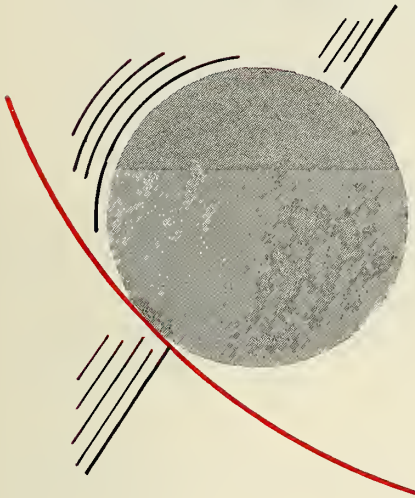
SEARLE

Aminophyllin*

increases cardiac output

"improves exercise tolerance by 42 per cent"[1]





oral
parenteral
rectal dosage forms

Indicated in:

Dyspnea of Congestive Heart Failure
Bronchial Asthma
Status Asthmaticus
Pulmonary Edema
Control of Cheyne-Stokes Respiration

Also of value as: Peripheral Vasodilator[2]

1. Kissin, M.; Stein, J. J., and Adelmon, R. J.: Angiology 2:217 (June) 1951.
2. Rickles, J. A. J. Florido M.A. 38:263 (Oct.) 1951.

*Cantains at least 80% af anhydrous theophylline.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

SEARLE RESEARCH IN THE SERVICE OF MEDICINE

cent experience[42] has shown good results with penicillin injected into the affected pleural space followed by frequent aspirations.

Tillet[43] has done some interesting work with enzymes, streptokinase and streptodornase, which resolve fibrin and permit more complete aspiration and thus shorten recovery time. With intrapleural injection of these enzymes, there is some difficulty, however, with pyogenic toxic reaction and the developing of specific antibodies. Some English investigators have used streptokinase and streptomycin intrathecally for tuberculous meningitis with a presumably lowered mortality.

B. Unusual Pleural Effusions

A pleural fluid eosinophilia has been discussed by MacMurray,[44] who states that such an entity exists when over five per cent of the cells in an effusion are eosinophils. The blood eosinophil count averages from four to seven cells in his three cases. The phenomenon may follow lobar pneumonia, may accompany Löeffler's syndrome, asthma, and pulmonary tuberculosis, and may represent a rebound phenomenon after adrenocortical stress.

Cholesterol pleural effusion is termed a rare type of pleural effusion with only 60 cases being reported in the literature. The authors[45] believe that tuberculosis is the most likely cause for cholesterol effusions. Cholesterol is practically always present in pleural fluid but when the complex balance with protein elements is upset, crystals of cholesterol are precipitated. Conditions necessary for precipitation of cholesterol crystals are:

1. Persistent exudate containing cholesterol from the blood.
2. Pleura must be thickened.

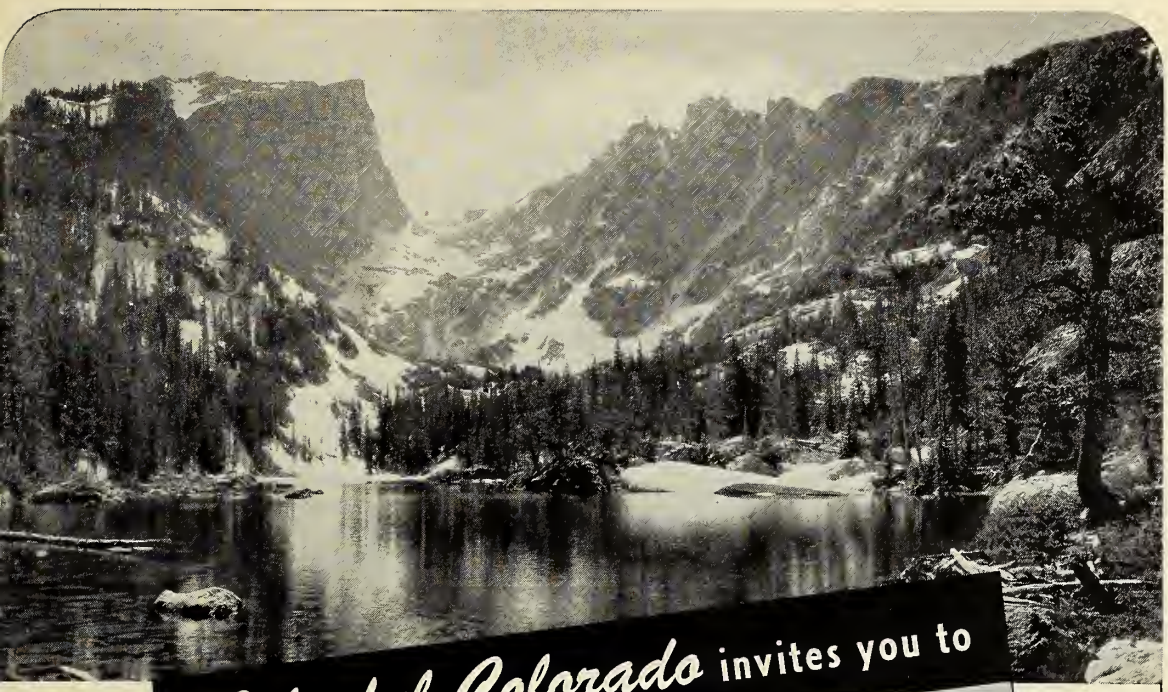
Other theories on etiology are pleural lipoidal degeneration, destruction of leucocytes in the pleural space, destruction of tubercle bacilli, and a general metabolic disturbance.

C. Ascites Formation with Cirrhosis

While ascites is not a part of this paper, the mechanism of its production is conducive to newer beliefs concerning the importance of such points as anoxia as exemplified and accentuated by Drinker.[5] Obstruction of the hepatic veins or vena cava results in ascites, but portal occlusion results in the development of collateral circulation and enlargement of the spleen. The writers[46] relate that portal hypertension and hypoalbuminemia do not of themselves produce ascites, but perhaps lend to the tendency to ascites if both occur together. These authors[46] found also that the kidneys did not excrete sodium in proportion to sodium intake and that there was a concomitant decreased water output. It was proposed, after finding unusual amounts of antidiuretic substances in ascitic patients' urine, that a greater tubular reabsorption of water was caused by an increased posterior pituitary antidiuretic hormone.

Bibliography

1. Myers and McKinley: The Chest and the Heart: Vol. I, 191-252. Pub., Charles C. Thomas, 1948.
2. Sodeman, William A.: Pathological Physiology, Pub., Saunders, 1950, 199.
3. Barnwell, John B.: Pleural Effusion, Cecil's Textbook of Medicine, 7th Edition, pp. 976-982.
4. Boyd, William: Textbook of Pathology, Pub. by Lea & Febiger, 1947; pp. 473-476.
5. Drinker, Cecil K.: Pulmonary Edema and Inflammation, Harvard Univ. Press, 1945, Chap. I, II, III, IV.
6. Courtrie, F. C., and Phipps, P. J.: The Absorption of Fluids from the Lungs; J. Physio., 1946, 105, 186-190.
7. Laurie, James: Pleurisy, with special references to Primary Pleurisy with Effusion; Edinbourg Med. J., No. 4:191, 1950.
8. Morris: Textbook of Human Anatomy, 10th Ed., 1944, p. 824, 791.
9. Meigs, et al: Am. J. Obst. and Gynec.; 1943, 46, 19.
10. Anderson, W. A.: Pathology, Pub. by Mosby & Co., 1948; p. 1114.
11. Glasser, Otto; Medical Physics, Yearbook Pub., Chicago, 1944, p. 888, p. 1503.
12. Soresi, A. L.: Correct Conception of Thoracic Empyema and its Rational Physiological Treatment; M. J. and Rec. 121; 460, 524, 1925.
13. Clendening, Logan, Hashinger, Edward H.: Methods of Diagnosis, C. V. Mosby, St. Louis, 1947, p. 437-443.
14. Major, Ralph H.: Physical Diagnosis, Saunders, 3rd Ed. 1945, p. 10.
15. Custer, E. W., and Evans, R. E.: Spontaneous Pl. Effusion; Am. Pract., 1946, 1, 138.
16. Rothstein, Emil and Landis, Francis B.: Am. J. of Med. V, VIII, Jan., 1950.
17. Katz, Sol and Reed, H. R.: Unusual Pleural Effusions; Radiology, 45:147-155, 1945.
18. Rubin, E. H.: Dis. of Chest, Philadelphia, Saunders, 1948, pp. 546-563.
19. Falk, Abraham: The Prognostic Signif. of Idiopathic Pl. Eff.; Dis. of Chest, V, XVIII, Dec., 1950, pp. 542-561.
20. Sibley, John C.: Am. Rev. of Tuberc., p. 314, Sept., 1950.
21. Thompson, Brian C.: Am. Rev. of Tuberc., 54:349-363, 1946.
22. Paterson, R. C.: Amer. Rev. of Tuberc.: 1:343, 1917.
23. Lemon, W. S., and Feldman, W. H.: Amer. Rev. of Tuberc., 48, 177-183, 1943.
24. Maclean, K. S.: Guys' Hospital Reports, 97, 1948, pp. 133-184.
25. Gelenger, S. M., and Wiggers, R. F.: Dis. of Chest, 15:325, 1949.
26. Pinner, Max: Am. Rev. of Tuberc. Vol. 22, p. 25-183, 1930.
27. Gruner: Brit. J. of Tuberculosis, 1909, iii, 191.
28. Farber, J. E.: New E. J. of Med., 228: 784, 1943.
29. Schuman, C.: Quart. Bull., 1941, Sea View Hosp., 7, 69.
30. Hardy, J. B., and Kendig, E. L.: J. Ped. 26, p. 138-148, 1945.
31. Smithers, D. M.: Arch. Dis. Child., p. 245, 1934.
32. Scherf and Boyd: Cardio. Vas. Dis., Lippincott, 1947.
33. McPeak, Edgar M., Levine, Samuel A.: Ann. of Int. Med., 25, p. 916, Dec., 1946.
34. Weiss, S.: Proc. New Eng. Ht. Assoc., Jan., 1941.
35. Bedford, D. E.: Lancet, 1939, 1, 1303.
36. Bedford, D. E., and Lovibond, J. L.: Brit. Heart Jr., 1941, III, 91.
37. Miller, W. S.: The Lung, 1937, Chas. C. Thomas, Baltimore, Md.
38. White, Paul D., et al: Am. J. Med. Sc., Sept., 1947, p. 243-247.
39. Dock, William: American Ht. Journal, 1934-35, pp. 1047-1055.
40. Best and Taylor: The Physiol. Basis of Med. Practice, Pub. Williams and Wilkins, 1945, page 307.
41. Capps, J. A., and Lewis, D. D.: Am. J. M. Sc., 134-868, 1907.
42. Sodeman, William A.: Pathological Physiology, Saunders, 1950, p. 243.
43. Tillet, William S., et al: Vol. LXII, 1949, pp. 93-97, Transact. of the Assoc. of Am. Physic.
44. MacMurray, F. G., et al: New Eng. J. of Med., 243-9, Aug. 31, 1950.
45. Goldman, Alfred and Burford, Thomas: Dis. of Chest., Vol. XVIII, No. 6, 1950, pp. 586-594.
46. Staff Clinic: Am. J. of Med., Vol. IX, July, 1950, pp. 102-113.



Colorful Colorado invites you to

THE SIXTH ANNUAL ROCKY MOUNTAIN CANCER CONFERENCE

at Denver • July 9 and 10

No Registration Fee
Headquarters: Hotel Shirley-Savoy

Sponsored by
The Colorado State Medical Society
and the
Colorado Division, American Cancer Society

•

For information write to Rocky Mountain Cancer Conference 835 Republic Bldg. Denver 2

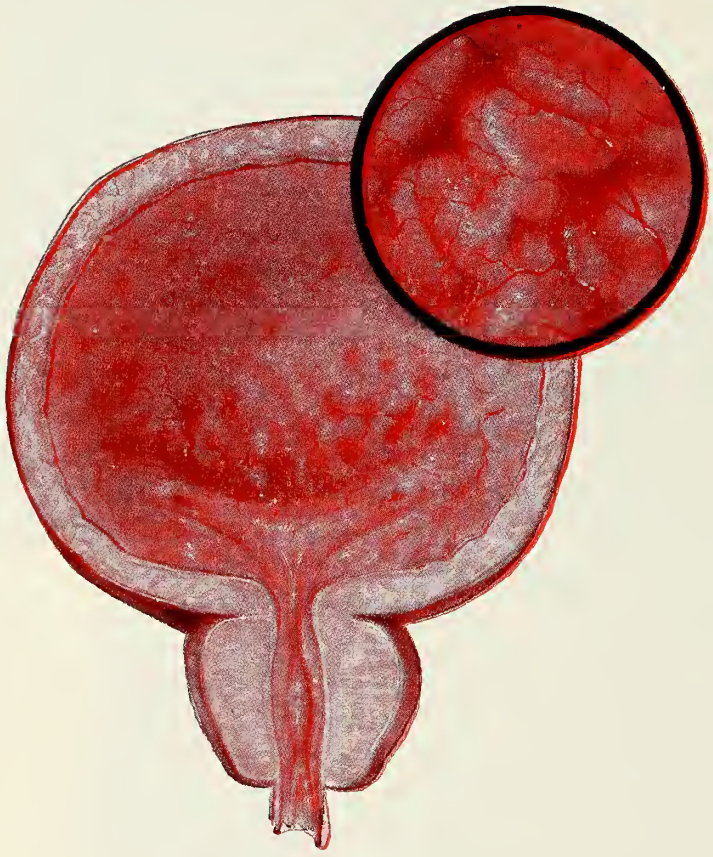
★ An unusually fine program has been prepared with eight distinguished guest speakers covering the fields of Surgery, Pathology, Pediatrics, Radiology, Dermatology, Gynecology and Internal Medicine.

★ You will enjoy meeting colleagues from 20 states who annually attend this superb conference.

★ A banquet and special entertainment the first evening will provide relaxation and enable you to enjoy Denver's western hospitality.

★ You can combine attendance at an interesting medical meeting with an enjoyable vacation in the Rocky Mountain west when scenery and climate are at their best.

Plan Now to be in Denver July 9 and 10



in urinary tract infections:

"Terramycin was selected [for 67 patients] in preference to other broad-spectrum antibiotics in view of high urinary excretion rate following small oral doses of the antibiotic." Post-operative pyuria was significantly reduced after 44 major gynecological operations, and various other genito-urinary complications responded equally well.

Blahey, P. R.: Canad. M.A.J. 66:151 (Feb.) 1952.

ANTIBIOTIC DIVISION Pfizer

Terramycin is also indicated in a wide range of

Terramycin

GRAM-POSITIVE BACTERIAL INFECTIONS
Lobar pneumonia • Mixed bacterial pneumonias
Bacteremia and septicemia
Acute follicular tonsillitis
Septic sore throat • Pharyngitis
Acute and chronic otitis media
Acute bronchitis • Laryngotracheitis
Tracheobronchitis • Sinusitis
Chronic bronchiectasis
Pulmonary infections associated with pancreatic insufficiency
Scarlet fever • Urinary tract infections
Acute and subacute purulent conjunctivitis
Acute catarrhal conjunctivitis
Chronic blepharoconjunctivitis not involving the meibomian gland
Abscesses • Cellulitis
Furunculosis • Impetigo
Infections secondary to Acne vulgaris
Erysipelas • Peritonitis

GRAM-NEGATIVE BACTERIAL INFECTIONS
Gonorrhea • Brucellosis
Bacteremia and septicemia
Friedländer's pneumonia
Mixed bacterial pneumonias
Pertussis • Diffuse bronchopneumonia
Post-partum endometritis • Granuloma inguinale
Dysentery • Urinary tract infections
Respiratory tract infections
Cellulitis • Peritonitis • Tularemia

SPIROCHETAL INFECTIONS
Syphilis • Yaws • Vincent's infection

RICKETTSIAL INFECTIONS
Epidemic typhus • Murine typhus
Scrub typhus • Rickettsialpox
Q fever • Rocky Mountain spotted fever

VIRAL INFECTIONS
Primary atypical pneumonia (virus pneumonia)
Lymphogranuloma venereum • Trachoma

PROTOZOAL INFECTIONS
Amebiasis

Available as

CAPSULES
ELIXIR
ORAL DROPS
INTRAVENOUS
OPHTHALMIC OINTMENT
OPHTHALMIC SOLUTION

ACCEPTED Council on Pharmacy and Chemistry American Medical Association

CHAS. PFIZER & CO., INC., *Brooklyn 6, N. Y.*

BOOK REVIEWS

Signs and Symptoms. Applied Pathologic Physiology and Clinical Interpretation. Edited by Cyril M. MacBryde. Published by J. B. Lippincott Company, Philadelphia. 783 pages. Price $10.

The editor and a group of outstanding authorities collaborating with him in this second edition have improved a book which was remarkedly fine in its first appearance.

In words of the editor in his preface to the second edition, "A profound knowledge of all of Medicine's accessory sciences is of little avail without accurate diagnosis. 'Diagnosis' in the original Greek means knowledge through signs and that is what it should still mean. The physician's basic duty is to determine whenever possible the cause of the illness. Only when the mechanisms of disease are understood and insight has been gained into the manner of production of signs and symptoms can one proceed with the physician's ultimate duty of the relief of suffering and the amelioration or cure of disease."

This textbook should have particular appeal to the clinician and to the practicing physician, but at the same time it should be invaluable to the student, intern, and resident.

Thirty of the common signs or symptoms commonly encountered in the practice of medicine are treated first in a manner to reacquaint anyone with the classical aspects of these features, and secondly a direct and quite adequate tie-in is made with the disturbed physiology associated with these signs and symptoms.

The first chapter in the book deals with the approach to an analysis and interpretation of symptoms, the history, etc. The second chapter deals with undoubtedly the most common presenting symptom in medicine—that of pain. This is discussed in detail as to the aspects of pain, the anatomy and physiology of pain, the psychology of pain, the clinical manifestations and function of pain. From this point some of the principal focalizations of pain are discussed in great detail. Other interesting and commonly encountered signs and symptoms such as palpation and tachycardia, cough, hemoptysis, dyspnea, jaundice, fever, fainting, pigmentation of the skin, and itching are likewise presented in a manner not encountered in any other textbook.

The adequate and complete bibliographies appearing at the end of each chapter testify to the thoroughness with which the various contributors entered into the development of each section.

The objectives of the authors to assist the physician in evaluating signs and symptoms of disease seem to have been well fulfilled in this book.—*M.H.D.*

* * *

Textbook of Refraction. By Edwin Forbes Tait. Published by W. B. Saunders Company, Philadelphia. 418 pages, 93 figures. Price $8.00.

This is an excellent textbook on refraction in which all aspects are adequately discussed. It is written in a manner that is easily read and is valuable for anyone interested in this phase of medicine. It is definitely a book designed for the specialist or one studying refractions and not for the physician in general practice.—*A.N.L., Jr.*

* * *

Textbook of Clinical Neurology. Seventh Edition. By Israel S. Wechsler. Published by W. B. Saunders Company, Philadelphia. 801 pages, 179 illustrations.

This is the seventh edition of a standard American text. In this edition the author has carried out a thorough revision of the previous volumes and has effectively modernized several sections, particularly "Treatment of Infections of the Central Nervous System," as well as including more recent material on cerebral-vascular anomalies and injuries to the brain and spinal cord. The revision of the chapter on neuroses is a useful guide for the neurologist and general practitioner. The references have been modernized.

The reviewer considers this textbook to be one of the most useful presently available in the field of clinical neurology. The index and arrangement of the book are good and the various sections are easy to read. It is particularly suitable for those interested in clinical neurology, especially those in general practice and students.—*C.E.B.*

* * *

The Clinical Use of Fluid and Electrolyte. By John H. Bland. Published by W. B. Saunders Company, Philadelphia. 259 pages, 75 figures. Price $6.50.

This very practical and readable textbook on fluid and electrolyte balance should prove exceedingly valuable to all clinicians. Besides discussing the general considerations of body fluids and electrolyte balance, this monograph also discusses the changes in fluid and electrolyte balance in the various disease states. This book is a must for clinicians and students who wish to approach the fluid and electrolyte problems intelligently.—*W.L.V.*

* * *

Diagnostic Bacteriology. Fourth Edition. By I. G. Schaub and M. K. Foley. Published by C. V. Mosby Company, St. Louis. 356 pages, 47 tables. Price $4.50.

"More effective than any other drug or conditioned reflex therapy—"



to screen patients
for **Antabuse**® administration

Antabuse, a new aid for selected intemperate drinkers, is part of the comprehensive and integrated Ralph regimen.

The screening of patients for the treatment requires a psychiatric examination. Also candidates, in our experience, need certain laboratory determinations previous to therapy and during any subsequent trials with alcohol.

The Sanitarium provides complete hospital care of the patient with the special Ralph skills developed in more than fifty years experience in the treatment of alcoholism.

The cooperation of the patient's personal physician is desired to offer the most in bringing the problem drinker from his blind alley into a normal, useful life.

The RALPH Sanitarium

Ralph Emerson Duncan, M.D., Director

529 Highland Avenue KANSAS CITY 6, MO. Phone Victor 3624

Diagnostic Bacteriology is one of the rare texts on actual clinical laboratory procedures. Beginning with receipt in the laboratory of various clinical and autopsy materials, step-by-step methods are presented for isolating and identifying bacteria and fungi likely encountered. The authors are particularly to be commended for mentioning many practical details and "tricks" too often overlooked in more formal dissertations, and for including numerous recently developed techniques.

New in the fourth edition are an entire section on antibiotic sensitivity testing and expanded discussion of the selection and preparation of media. Procedures dealing with the tubercle bacillus and fungi are less well covered than most. The chapters on the biochemical identification of streptococci, enteric organisms, etc., have been extensively revised and this is an outstanding section in a generally fine book.—*H.C.R.*

* * *

Backache, Birth and Figure Relief by Self-Revolving Hipbones. By William Schoenau. Published by William Schoenau, Los Angeles. 264 pages, 42 illustrations. Price $2.00.

For many years there has been controversy as to the existence of changes in the sacroiliac articulations following trivial injury or other stresses and to the symptoms that are produced if such articulations are deranged. The fairly unanimous attitude of the medical profession has been that these changes and their consequences do not exist and the subject has been very largely ignored by the profession as a whole. Those outside the medical profession have aggressively forwarded the concept of disarticulations, subluxations and other abnormal relationships of articulations of the sacroiliac joints as not only existing but as being prominent causes of many disorders totally unrelated to one another. This book appears to be an expression of the latter concept.

The author self-admittedly is not a physician. He has based the theme of this book on the concept that it is possible, either deliberately or accidentally, to revolve the ilium on the sacrum forward or backward in a saggital plane or clockwise or counterclockwise in a frontal plane. This is the procedure which he terms self-revolving hipbones. It is his belief that such rotatory movements may occur with either ilium quite independently of the other, thus permitting combinations of several possible relationships of the two ilia to each other and to the sacrum.

The statements made stem from observations made by the author on himself, from "revolving the hipbones of a human skeleton, by dissecting the bones of animals and by measuring the pictures and printed x-rays of deformed people." He carefully omits any admission of having treated patients but broadly implies that the method should be used in various conditions.

The book is divided into five parts: care of the back, pelvis and figure; birth eased by self-revolving hipbones; diagnosis and mechanical operation; straightening one's figure daily; and how to self-revolve the hipbones. In each of these sections the importance of the normal relationships at the sacroiliac articulations is stressed together with deviations from the normal and the means to restore abnormal rotations.

That the author is sincere in his beliefs, the reviewer does not doubt. His information appears to be strictly self-derived, a circumstance which makes it difficult for him to discuss anatomical terms and relationships in any way other than that which sounds pseudoscientific. "The side edge of a hipbone may be moved 3/16 of an inch in front of the front of the top of an ala on a 1¼ inch radius for each 10 degrees its hip joint is revolved backward" (page 187) is an example of the confusion that exists throughout the book as the author attempts to explain his theories. It is unfortunate that he did not seek competent assistance in writing the book. The germ of truth which may exist is completely lost to the reviewer in the welter of over-repetition of the phrase, revolving hipbones, in the confusion of terms meaningless from the anatomical standpoint, and in the over-precise use of mathematical relationships which almost certainly do not exist.

It is doubted that this book contains much of interest to the average physician.—*D.L.R.*

* * *

Dynamic Psychiatry. By Louis S. London. Published by Corinthian Publications, Inc., New York. 98 pages. Price $2.00.

Dr. London's book, Dynamic Psychiatry, is quite condensed, including many of the important concepts that are popular in psychiatry at this time. As a book for the student and general practitioner who wishes to obtain a general view of psychodynamics, I recommend it highly. It is impossible to cover adequately the many concepts that are mentioned in this small book, but it does give the reader an opportunity to be introduced to many of the prominent men in the field of psychiatry, and their interpretations of personality structure. This book is an excellent text for medical students who have had a previous contact with psychology and elementary courses in psychiatry.—*E.E.B.*

Less syphilis was reported in 1950 than in any year since 1929, and less gonorrhea than at any time since 1942.



asthma control with limited side-action

Orthoxine Hydrochloride, an antispasmodic and bronchodilator, was developed by Upjohn research chemists by modifying the configuration of a sympathomimetic amine molecule.

Such molecular structural change limits the action of Orthoxine mainly to bronchodilatation, thereby minimizing side-actions (vasopressor and psychomotor stimulation).

For more air, with less trouble, in controlling asthma...

R Orthoxine*

HYDROCHLORIDE

(BRAND OF METHOXYPHENAMINE)

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

Bottles of 100 and 500 tablets

Orthoxine Hydrochloride (100 mg.) Tablets contain beta-(ortho-methoxyphenyl)-isopropyl-methylamine hydrochloride — a bronchodilator and antispasmodic.

** Trademark, Reg. U.S. Pat. Off.*

a product of

Upjohn Research

for medicine . . . produced with care . . . designed for health

THE UPJOHN COMPANY, KALAMAZOO, MICHIGAN

ANNOUNCEMENTS

The General Practice Group of the University of Tennessee has established a postgraduate clinical training program for general practitioners. This has been approved by the American Academy of General Practice for its members.

The program is designed for the general practitioner on an individual basis, according to his individual needs. One week to one month of training is offered.

Each doctor will spend morning hours in his choice of any one of the specialty fields. This will be active work at the resident level. The afternoons will be spent in the general practice clinic. Evenings are utilized in the emergency room of the John Gaston Hospital which is supervised by members of the general practice staff.

General practitioners who desire further information may write to the General Practice Office, University of Tennessee, Memphis, Tennessee. No fee is charged for this training.

* * *

The 30th annual scientific and clinical session of the American Congress of Physical Medicine will be held at the Roosevelt Hotel, New York City, August 25-29. All sessions will be open to members of the medical profession in good standing with the A.M.A. Full information may be obtained from the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2, Illinois.

ABSTRACTS FROM CURRENT LITERATURE

Adrenal Insufficiency

Advances in the Diagnosis and Treatment of Adrenal Insufficiency. By George W. Thorn, Peter H. Forsham, Thomas F. Frawley, D. Lawrence Wilson, Albert E. Reynood, Donald S. Fredrickson and Dalton Jenkins, Am. Jnl. Med., 10:5, 595-611, May, 1951.

These authors emphasize the importance of the synthesis of the adrenal steroids in pure form in the treatment of insufficiency, as well as the importance of ACTH in the establishment of such insufficiency. They then discuss various laboratory and x-ray aids in the diagnosis of adrenal insufficiency.

1. Changes in adrenal morphology. Adrenal biopsies are impractical and unsatisfactory, except in the occasional case of adrenal insufficiency associated with carcinoma or androgenic hyperplasia of the adrenal cortex. Of 123 patients with adrenal insufficiency who had abdominal x-ray, 15 showed adrenal calcification. However, four other patients showed adrenal calcification and did not have adrenal insufficiency.

2. Changes in urinary steroid excretion. Excretion of so-called 11-oxysteroids is very low in adrenal insufficiency; 17-ketosteroid excretion is more easily measured; in adrenal insufficiency in women it approaches zero; in men, it may be reduced to 50 per cent or less.

3. Characteristic changes in the electroencephalogram. In Addison's disease, there is a decrease in the predominant frequency and short bursts of low frequency.

4. Changes in electrolyte balance. Serum sodium concentration below 136 m.E q. per L., associated with a serum Na/K ratio below 30 suggests adrenal cortical insufficiency. A salivary sodium: potassium ratio above 2.2 is found in some patients with Addison's disease.

5. Changes in carbohydrate metabolism. These are nonspecific and not diagnostic.

6. Hematologic changes. There is often a low total white count with increased lymphocyte percentage and normal to elevated number of circulating eosinophiles.

7. Robinson-Kepler-Power water test. This test demonstrates inability to show normal water diuresis.

8. Wilder test. Reaction of the adrenal cortex to stress is demonstrated by withdrawing salt from the diet and adding potassium.

9. Twenty-four-hour fast. After a 15-hour fast, blood sugars are measured every three hours for the balance of 24 hours. Exclusion of hypoglycemia rules out insufficiency of adrenal carbohydrate regulating factors.

10. Four-hour ACTH test. The circulating eosinophiles are measured four hours after injection of 25 mg. of ACTH. The majority of normals show a drop of 70 per cent. A group of Addison cases showed an average decrease of only seven per cent. Patients with panhypopituitarism showed an average decrease of 31 per cent.

11. Forty-eight-hour ACTH test. After an initial dose of 25 mg., 10 mg. is given every six hours for 48 hours. The eosinophile count is done four hours later. In normals, the fall averages 91 per cent. In patients with Addison's disease, the fall consistently fails to reach 50 per cent.

12. Intravenous ACTH test. Results similar to those described.

13. Four-hour epinephrine test. Results are similar to those with ACTH but are more variable and less dependable. Not to be used when ACTH is available.

For Your Security and Peace of Mind

A DISABILITY
LIFE INCOME PROGRAM
FOR ELIGIBLE MEMBERS
OF YOUR STATE
PROFESSIONAL GROUP

Lifetime Protection
for both
Sickness & Accidents

A SILENT PARTNER . . . *Continental's Companion Policies*

ACCIDENT AND CONFINING SICKNESS

Pays $ 400	Monthly Benefits first 2 years ($200 1st mo.) and
$ 300	Monthly Benefits thereafter for life.
Pays $ 600	Additional Monthly Benefits First 3 Months for Hospital Disability.
Pays $ 7,500	Accidental Death Benefits, $12,500 Double Indemnity.
Pays $10,000	Loss of Hands, Feet or Eyes, $15,000 Double Indemnity (or).
$ 5,000	Cash, & $400 monthly first 2 years, $300 monthly thereafter.
	Adjusted benefits for disabilities occurring after age 60.

SPECIAL FEATURES

No Cancellation Clause,—Standard Provision 16
No Terminating Age,—Standard Provision 20
No Increase in Premium,—Once Policy is Issued
Grace Period 15 Days

Non Pro-Rating,—Standard Provision 17
Non-Assessable,—No Contingent Liability
Non-Aggregate,—Previous Claims Paid do not limit Company's Liability

Unusually Complete Protection

★ Pays Monthly Benefits from 1st Day to Life.
★ Pays Benefits for both Sickness and Accident.
★ Pays Lifetime Benefits for Time or Specific Losses.
★ Pays Regular Benefits for Commercial Air Travel.
★ Pays Benefits for Non-Disabling Injuries.
★ Pays Benefits for Non-Confining Sickness.
★ Pays Benefits for Septic Infections.
★ Pays Whether or not Disability is Immediate.
★ Waives Premiums for Total Permanent Disability.
★ Renewal is guaranteed to individual active members, except for non-payment of premium, so long as the plan continues in effect for the members of your designated organization.

CONTINENTAL CASUALTY COMPANY

PROFESSIONAL DEPARTMENT, *Intermediate Division*

30 EAST ADAMS STREET—SUITE 1100—CHICAGO 3, ILLINOIS

Also Attractive
Health With
Lifetime Accident
Policy I.P.-1327
For Ages 59 to 75

Name.....

Address.....

Age.....

NOTICE—Only Companion Policies GP 1309 and IP-1308 pay the above benefits.
IMPORTANT—Permit no agent to substitute—IMPORTANT

The following agents are available for treatment of Addison's disease.

1. Adrenal cortical extract. This is of low potency, but is suitable for any type of parenteral route, and the action is rapid and of short duration. Lipo-adrenal cortex is 10 times as active in carbohydrate-regulating activity as most aqueous extracts, but contains less of the salt-retaining factors.

2. Desoxycorticosterone acetate. This steroid has potent salt and water retaining capacities.

3. Cortisone acetate. This compound preserves carbohydrate stores. It is most effective when given by mouth.

4. Dehydrocorticosterone (compound A) and corticosterone (compound B) have been given to patients with Addison's disease. These influence salt retention and intermediary metabolism. It has been suggested that corticosterone might provide complete hormonal substitution in Addison's disease.

In treating the patient with Addison's disease, these authors advocate first careful screening for active tuberculosis. Frequent feedings may be necessary if hypoglycemia is troublesome. They start the patient on desoxycorticosterone intramuscularly, increasing the dose to early signs of excessive fluid retention. The dose is then decreased until weight ceases to increase. A further reduction of 0.5 mg. is made, and salt is added in the dose of 1.0 gm. three times a day. After observation and further dosage adjustment, DCA pellets are implanted, 125 mg. for each 0.5 mg. of DCA required daily by injection. These usually last eight to 10 months. After therapy is well established, cortisone is added in doses of 12.5 mg. twice a day.

In the presence of infection, the patient with Addison's disease should be schooled to take additional cortisone.

Addisonian crisis is treated by large doses of DCA and cortisone intramuscularly, adrenal cortical extract intravenously, blood transfusion or human albumin, and intravenous salt and glucose.

Results with cortisone have been gratifying, chiefly increased appetite, weight, muscular strength and aggressiveness. Hair growth is increased and pigmentation decreases. The slowed electroencephalogram returns gradually to normal.—*E.J.R.*

* * *

Agenesis of the Vermiform Appendix

Agenesis of the Vermiform Appendix. By Donald C. Collins, Am. Jnl. Surg., 82:6, 689-696, Dec., 1951.

Congenital absence of the human vermiform appendix is rarely encountered. The author reviews the literature and adds three cases observed by himself.

Embryologically, the vermiform appendix is seen as a vestigial structure. All carnivora possess some type of cecal appendix, but only in man and the anthropoid apes does it occur as a vermiform structure. It represent only the undilated portion of the true distal apex of the adult cecum. "Therefore, no mysterious nor mystical endocrine functions may be correctly attributed to the human appendix."

Dr. Max Thorek is quoted as saying, "While some authors maintain that an appendix may be absent, in several thousand appendix operations I have always been successful in locating it," thus emphasizing the rarity of the condition.

Anomalies of this region include: 1. Failure of development of cecal anlage; 2. Partial development of cecal anlage; 3. Full development of cecal anlage, no development of appendiceal anlage; 4. Full development of cecal anlage, early cessation of appendiceal anlage; 5. Full development of cecal anlage, failure of the appendiceal anlage to become differentiated, its growth keeping up with that of adult cecal portion.

This group represents a total of 74 cases in the literature, out of which appendiceal agenesis occurred in 60, and which includes the three cases reported by the author—one of which was surgical and two were autopsies.

The bibliography includes reference to 87 articles on the subject.—*T.P.B.*

AMERICAN BOARD EXAMINATIONS

Anesthesiology. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15, Conn. Various locations, July 18.

Dermatology and Syphilology. Sec., Dr. George M. Lewis, 66 East 66th St., New York 21.

Internal Medicine. Sec., Dr. William A. Werrell, 1 West Main Street, Madison 3. Written, various centers and overseas, Oct. 20; closing date for applications, May 1. Oral, Chicago, June 5-7; San Francisco, in fall.

Obstetrics and Gynecology. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6. Oral, Chicago, June 9-13, 1952.

Ophthalmology. Sec. Dr. Ewin B. Dunphy, 56 Ivie Road, Cape Cortage, Maine. Practical, Philadelphia, May 29-June 3; Chicago, Oct. 6-10; New York City, June 6-10.

Otolaryngology. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City. Oral, Chicago, Oct. 6-10.

Pathology. Sec., Dr. Robert A. Moore, 1402 S. Grand Blvd., St. Louis.

Pediatrics. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa. Oral, Washington, D. C., May 2-4; San Francisco, June 27-29; Chicago and Boston, in fall.

Physical Medicine and Rehabilitation. Sec., Dr. Robert L. Bennett, Georgia Warm Springs Foundation, Warm Springs, Ga. Parts I and II, Chicago, June 8-9.

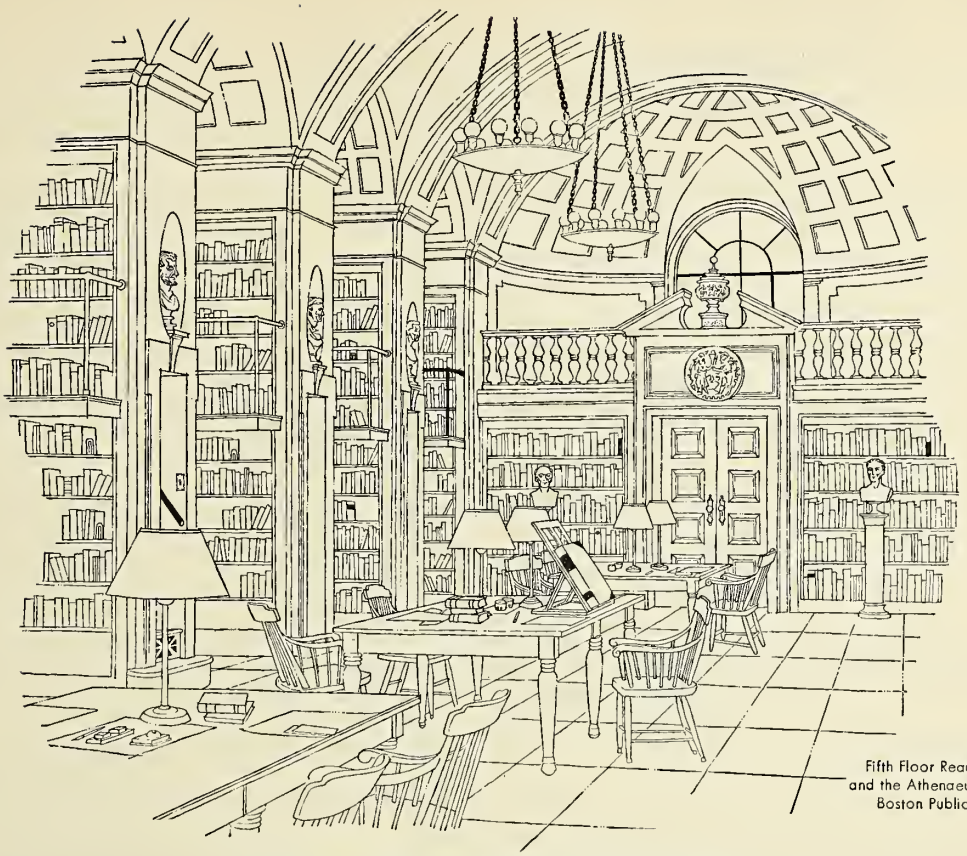
Preventive Medicine and Public Health. Sec. Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore.

Psychiatry and Neurology. Sec., Dr. David A. Boyd, Jr., 102-110 Second Ave., S.W., Rochester, Minn. New York City, Dec. 15-16; closing date for applications, Sept. 15.

Radiology. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

Surgery. Sec., Dr. J. Stewart Rodman, 225 South 15th St., Philadelphia. Written, various centers, Oct., 1952.

Urology. Sec., Dr. Harry Culver, 30 Westwood Road, Minneapolis 16.



Fifth Floor Reading Room and the Athenaeum Entrance, Boston Public Library.

From among all antibiotics,

Obstetricians and Gynecologists often choose

AUREOMYCIN

Hydrochloride Crystalline

Because

Aureomycin diffuses so rapidly that it becomes available immediately to all the tissues in and about the pelvis.

Aureomycin readily passes into the blood stream, and through the placenta into the fetal circulation.

Aureomycin may be given by the oral, or in an emergency by the intravenous, route.

Aureomycin has been reported clinically effective when used systemically against susceptible organisms in many gynecologic and obstetrical infections, including:

Parenteral and Post-partum Infectious Complications • Mastitis • Thrombophlebitis • Pyelitis of Pregnancy • Staphylococcal Infection in the Newborn

Throughout the world, as in the United States, aureomycin is recognized as a broad-spectrum antibiotic of established effectiveness.

Capsules: 50 mg.—Bottles of 25 and 100, 250 mg.—Bottles of 16 and 100.
Ophthalmic: Vials of 25 mg. with dropper; solution prepared by adding 5 cc. of distilled water.

LEDERLE LABORATORIES DIVISION AMERICAN CYANAMID COMPANY 30 Rockefeller Plaza, New York 20, N. Y.

Infantile Communicating Hydrocephalus

Evaluation of "Seton" Procedure in the Treatment of Infantile Communicating Hydrocephalus. By Hendrik J. Svien et al, Jnl. Ped., 40:3, 298-302, Mar., 1952.

Hiller in 1933 described a simple procedure for the treatment of communicating hydrocephalus in infants which consisted of inserting a silk thread into the lumbar subarachnoid space through a specially designed spinal puncture needle. The needle is withdrawn and the silk thread is cut off so that the outer end is just below the skin. This leaves a tract for the flow of the cerebrospinal fluid into the adjacent soft tissue. The authors employed this method in 24 cases. Nine cases seemed to have had their hydrocephalus arrested.

The authors admit the results in the cases reported are not striking, but are of the opinion that they represent considerable more than the spontaneous remission rate would account for.—*D.R.D.*

Penicillin Prices Reduced

A reduction in the price of penicillin was announced recently by Eli Lilly and Company, Indianapolis. The average rate of reduction was 25 per cent, attributed by the company to improvements in production methods. Little more than 10 years ago, penicillin cost about 80 times the price today.

An estimate of use of penicillin, computed by Lilly officials, states that one out of three Americans received the drug during 1951.

CLASSIFIED ADVERTISEMENTS

FOR SALE—Will sacrifice. Entire office equipment. Town of 8,000 in southern Kansas location. Two good hospitals. Reason for selling, retiring. Write the Journal 3-52.

REGISTERED MEDICAL TECHNOLOGIST desires clinical position in Kansas City area. Write the Journal 5-52.

FOR SALE—Specialist's chair, E.E.N.T., W.E., with adjustable light (Beck's); ENT specialist's cabinet, W.E., 78 x 32, 5 drawers and 2 large compartments (Shanklin's); Yankauer compressed air and suction unit for ENT, W.E.; steel ENT revolving stool, W.E.; steel folding examining and operating table (Army); assortment of general surgical and ENT instruments. Retired. Write the Journal 6-52.

Nationally advertised Surgical Supplies and Equipment have been placed at Topeka, Joplin, Kansas City and St. Joseph for your convenience by—

GOETZE NIEMER CO.

Management by Dr. W. F. Goetze, a member of the American Medical Association, assures intelligent servicing of your orders.

It's Convenient to Buy Kanox

THERAPEUTIC OXYGEN AND ANESTHETIC GASES



Oxygen Therapy
Regulators and Equipment
Repair Service for
Regulators, Flowmeters
and Humidifiers

Nitrous Oxide
Ethylene
Carbon Dioxide
Helium
Oxygen
Cyclopropane

KANSAS OXYGEN, Inc.

Phone 6392 HUTCHINSON, KANSAS Box 551

WASHINGTON NATIONAL

DISABILITY INCOME PLAN

Officially approved and endorsed by the Council and the House of Delegates.

Investigated, analyzed and recommended by the Committee on Medical Economics and the Insurance Committee.

- Endorsed and Supervised by your Society
- Individually Non-Cancellable
- Lifetime Accident Benefits
- Five-year Sickness Benefits
- Local Claim Service

Serviced by

FIRST INSURANCE AGENCY

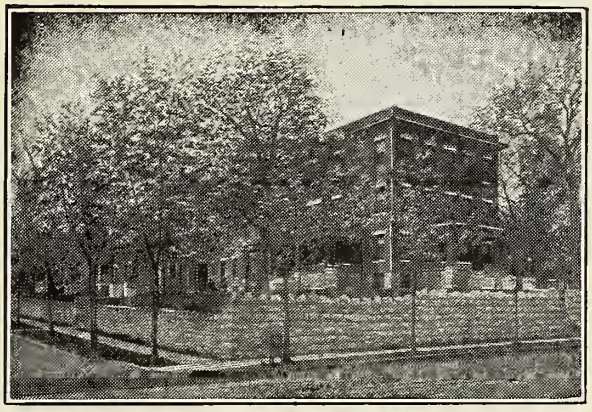
Washington National Insurance Company

639 New England Building Topeka, Kansas

THE MAJOR CLINIC ASSOCIATION

3100 EUCLID AVENUE KANSAS CITY, MISSOURI

A Well Equipped Institution for the Nervous and Mental Diseases and Alcohol Drug and Tobacco Addictions



Beautiful Location Large, Well Shaded Grounds Spacious Porches, All Modern Methods for Restoring Patients to a Normal Condition

Elderly People Accepted — Special Rates

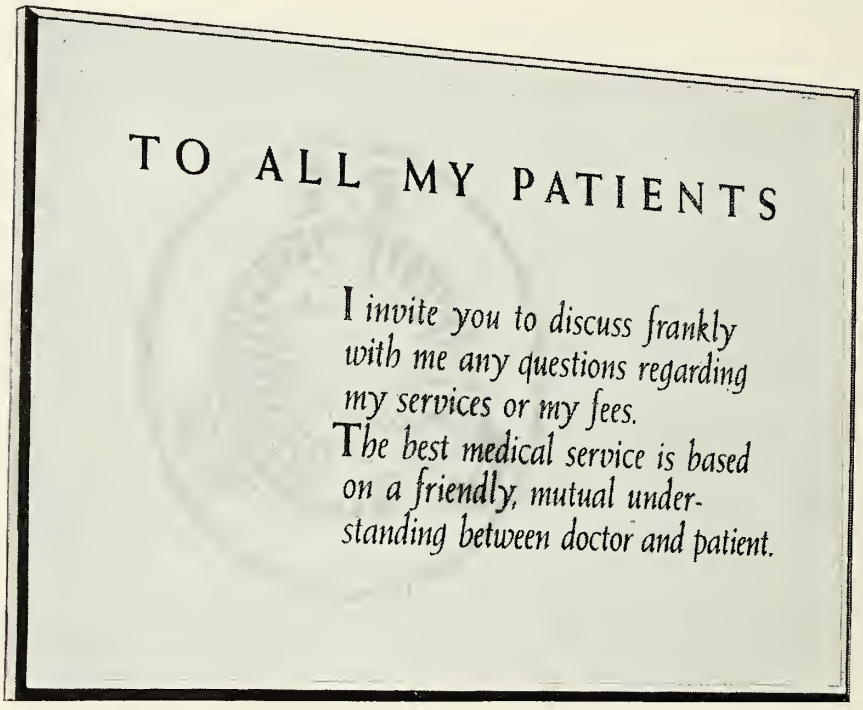
HERMON S. MAJOR, M.D.
Medical Director

HERMON S. MAJOR, JR.
Business Manager

announcing

A NEW PUBLIC RELATIONS AID

. . . to boost your PR rating



NEW OFFICE PLAQUE

- ✓ **dark brown lettering on buff**
- ✓ **harmonizes with any office decor**
- ✓ **measures 11½ by 7¾ inches**
- ✓ **for desk or wall**
- ✓ **laminated plastic finish**

As you know, a physician's best public relations is carried on right in his own office. Here the physician gets acquainted with his patients . . . gives them a chance to talk over problems . . . builds a feeling of mutual understanding between patient and doctor.

Your American Medical Association has designed an attractive new office plaque to be displayed prominently on an office desk or wall. This is a graphic invitation to patients to talk over professional services and fees. Patients like to ask questions, but often are hesitant to do so. This plaque will open the door to better relations with your patients. Order one today.

PRICE
$1
POSTPAID

Order Department
AMERICAN MEDICAL ASSOCIATION
535 North Dearborn Street
Chicago 10, Illinois

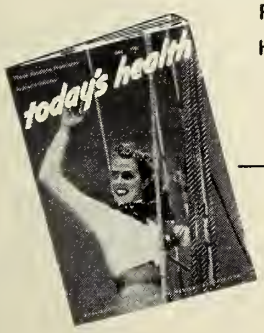
Merck & Mallinckrodt ® Reagents
KLINE TEST ANTIGEN (LAMOTTE)
PYREX LABORATORY GLASS WARE
PIPETTES AND BURETTES
PRECISION EQUIPMENT
HARTMAN-LEDDON SPECIALTIES
LABORATORY SUPPLIES & EQUIPMENT
KANSAS OWNED
Southwest Scientific Corporation
122 S. St. Francis Wichita 2, Kansas

The Neurological Hospital, 2625 West Paseo, Kansas City, Missouri, a voluntary hospital providing the care and treatment of nervous and mental patients, and associate conditions.

TROWBRIDGE TRAINING SCHOOL
Established 1917
For unusual children. Medical and psychiatric supervision. Experienced teachers. Individual special training. Home atmosphere. Enrollment limited. Approved and registered by the Council of Medical Education and Hospitals of the A.M.A. Pamphlet.
E. H. TROWBRIDGE, SR., M.D.
1905 BRYANT BUILDING KANSAS CITY 6, MO.

PHARMACEUTICALS
A complete line of laboratory controlled ethical pharmaceuticals. Chemists to the Medical Profession since 1903.
KA—5-52
ZEMMER
THE ZEMMER CO., PITTSBURGH 13, PA.

today's health a must!
for your reception room



Physicians' Half-Price Rates

4 years	$4.00
3 years	3.25
1 year	1.50

AMERICAN MEDICAL ASSOCIATION
535 North Dearborn · Chicago 10, Illinois

THE MEDICAL PROTECTIVE COMPANY
FORT WAYNE, INDIANA
PROFESSIONAL PROTECTION EXCLUSIVELY SINCE 1899
specialized service assures "*know-how*"

TOPEKA Office:
J. E. McCurdy, Rep.,
1035 Randolph Avenue,
Telephone 2-3027

Migraine In Children

"Migraine may appear during the first years of life. The presence of subjective signs, such as headache and flimmer scotoma, is often difficult to determine in young children. The true nature of the symptoms frequently remains obscure for years."

Vahlquist, B. and Hackzell, G.: Acta Paediatrica *38*: 622 (1949).

NO. OF CASES	SEX	AGE AT ONSET	CYCLIC VOMITING	DURATION OF ATTACK	INTENSITY
31	8 ♀ 23 ♂	3 yrs. (mean)	3 out of 31	2½ hrs.	severe in all cases

TABLE CONT'D

NO. OF CASES	UNILATERAL HEADACHE	NAUSEA	FLIMMER SCOTOMA	VERTIGO	HEREDITY
31	18 out of 31	31 out of 31	12 out of 31	6 out of 31	20 out of 31

(reference given above)

In a study of 400 adult migraine patients, it was revealed that 34% had suffered attacks before the age of 15.* These investigators concluded that childhood migraine was a much greater clinical problem than was previously believed and that psychodynamic mechanisms played an important part in the disease.

These criteria are useful in diagnosis:

Headache attacks with symptom-free intervals plus (at least two of the following) nausea, scintillating scotoma, hemicrania, and hereditary predisposition.

For symptomatic relief in these cases, Cafergot®, N.N.R. (ergotamine with caffeine) may be administered orally. For best results, give adequate dosage promptly.

For children within the age range 7 to 12 years—Cafergot® is administered, one tablet when the attack appears imminent followed by one additional tablet within 30 minutes. Not more than two Cafergot tablets should be administered to children within this age range.

In the adolescent age group, 12 to 18 years of age, the dosage may gradually be increased as necessary up to the usual adult dose, i.e., two tablets when the attack appears imminent followed by one tablet doses at half hour intervals until the attack is aborted. *(Total maximum dose for adults: six tablets for each attack.)*

*Katz, J., Friedman, A.P., and Gisolfi, A.: New York State J. Med. *50*: 2269 (Oct.) 1950.

Sandoz Pharmaceuticals
DIVISION OF SANDOZ CHEMICAL WORKS, INC.
68 CHARLTON STREET, NEW YORK 14, N. Y.

Index to Advertisers

Abbott Laboratories XIII
American Meat Institute V
Ayerst, McKenna and Harrison, Ltd. IX
Brown School XVIII
Continental Casualty Company 265
Cook County Graduate School of Medicine..... XVI
Duncan Laboratories X
Florida Citrus Commission XVII
Goetze Niemer Company 270
Hanicke, P. W., Manufacturing Company XVI
Kansas Oxygen, Inc. 270
Lattimore-Fink Laboratories XVI
Lederle Laboratories, Inc. 267
Lilly, Eli, and Company Facing XVIII
Major Clinic 269
Mead Johnson and Company..... Back cover
Medical Protective Company 271
Merck and Company, Inc. VIII
Munns Medical Supply Company, Inc..... XVI
Neurological Hospital Association 271
Parke, Davis and Company. Inside front cover and III
Pfizer, Charles, and Company, Inc.... VII, 258 and 259
Philip Morris and Company VI
Physicians Casualty Company XVIII
Ralph Sanitarium 261
Reynolds, R. J., Tobacco Co. XV
Rocky Mountain Cancer Conference 257
Sandoz Pharmaceuticals 272
Schering Corporation XI
Searle, G. D., and Company 255
Smith-Dorsey Company XIV
Southwest Scientific Corporation 271
Trowbridge Training School 271
Upjohn Company 263
Washington National Insurance Company 269
Winthrop-Stearns, Inc. XII
Woodcroft Hospital XVIII
Wyeth, Inc. Inside back cover
Zemmer Company 271

Low Death Rate in 1951

The battle for public health progressed markedly during 1951, when the lowest death rate in the nation's history was recorded, according to a recent release from the Federal Security Agency.

State public health programs placed increased emphasis during the year on the prevention and control of chronic diseases, with particular attention to cancer and heart disease. In some areas activities were directed toward problems of diabetes, arthritis and rheumatism.

Research in chronic disease kept pace with the expansion of control measures, the Surgeon General states. Investigations in heart disease centered around the major problems of rheumatic fever, hardening of the arteries and high blood pressure. Progress also is reported in cancer research, mental health research and dental research.

THE JOURNAL
of the
KANSAS MEDICAL SOCIETY
Owned and Published by The Kansas Medical Society

Volume LIII JUNE, 1952 No. 6

The Clinical Applications of Radioactive Isotopes in Small Hospitals

Frank E. Hoecker, Ph.D.,* and Homer L. Hiebert, M.D.
Lawrence, Kansas Topeka, Kansas

During the approximately five-year period in which artificially radioactive substances have been available in large quantities for clinical applications, their use has been confined almost entirely to the larger centers of population. The more or less routine use of radioactive iodine and radioactive phosphorus has, in many cases, been the natural outgrowth of early studies in research laboratories connected with large hospitals or medical schools. In these large institutions the necessary laboratory facilities and trained personnel are already available. On the other hand, such specialized facilities and staff are seldom available to the hospitals in small communities. As a consequence, the advantages of diagnosis or treatment based on the use of radioactive isotopes are not at this time generally accessible to the less densely populated areas of the country.

The writers, in close cooperation with the physicians and hospitals of the Topeka area, have undertaken to develop a program which makes these advantages available to the people of this community. In setting up this program, under somewhat less than ideal conditions so far as laboratory facilities and staff time are concerned, a number of problems have been encountered which might be typical of any attempt made under similar circumstances. It is our purpose to discuss these problems and to indicate what appear to be reasonable methods of overcoming certain limitations.

All applications of radioactive substances, whether in research, in industry or in medicine, are fraught with considerable danger, the actual degree being dependent upon the amount used, the particular material used and the purpose and manner of use. This is especially true in clinical applications because the exigencies of such uses may endanger not only the patient and the person who administers the material but also the hospital and community as well. These circumstances have exerted a severely restrictive influence on the spread of treatment and diagnosis by means of radioactive substances. These materials must, therefore, be used only with proper laboratory equipment and by specially trained individuals.

Nevertheless, in the presence of adequate equipment and in the hands of properly trained personnel, the application of carefully chosen radioactive isotopes for clinical purposes provides unique advantages not available through any other medium. However, the avoidance of danger to the patient imposes strict limitations on the choice of radioactive substances. The life of the substance in the body and the amount of energy liberated in the tissue must be carefully considered. Furthermore, the differential absorption of the radioisotope in the body must be known. The latter constitutes the most severe therapeutic limitation since it must be highly absorbed by the tissues to be treated and absorbed only slightly or not at all by other tissues.

In effect, the above considerations limit the internal use of radioactive isotopes at present, both diagnostically and therapeutically, to only four or five. The most useful one at present is radioactive iodine, I^{131}. Perhaps second on the list comes radiophosphorus, P^{32}, while radiosodium and radiogold come probably third and fourth. Other substances are even more rarely used.

It would be a mistake to infer that either the diagnostic or therapeutic use of any of these substances is standardized. Neither the mode of administration, the amount administered, nor the technique of interpretation is yet reduced to a generally accepted procedure. Perhaps least of all is the equipment either dependable or standardized. The internal

*Radiophysicist, University of Kansas.

clinical applications of radioactive substances are now in a stage comparable to that of x-rays 40 years ago. Such uses are still in the research phase and require the expenditure of unexpectedly large amounts of time on the part of the technical staff.

It is, of course, well known that complete control over the use of radioactive isotopes is exercised by the United States Atomic Energy Commission. Permission to obtain these substances for administration to human beings is obtainable only by an institution, not by an individual, and then only when the commission is satisfied with respect to the possession by the hospital of adequate facilities and the availability of properly trained personnel. The matter of facilities can usually be taken care of by any hospital which is willing to assign laboratory space and spend a sum of from $3,000 to $5,000 for specialized equipment.

Trained personnel are not always so easily provided. The Atomic Energy Commission requires that the hospital appoint an isotopes committee composed of members of its staff. It should comprise an internist, a pathologist, a radiologist with training and experience in administration of radioactive isotopes, and a radiophysicist. At present the number of radiologists with the requisite training and experience is small, while the number of radiophysicists who are able to devote a portion of their time to hospital work and are at the same time accessible to the hospital is extremely small.

The organization of the Topeka isotope program began in late 1950, when a small group of local physicians discussed with one of the writers (H.L.H.) the possibilities of bringing radioactive materials to the community. The undertaking seemed feasible provided that consultation services of a radiophysicist could be obtained.

This was solved through the University of Kansas which made available a certified radiophysicist (F.E.H.).

Laboratory space was offered by St. Francis Hospital and Stormont-Vail Hospitals. Space was immediately available in Vail Hospital and the laboratory was established there for that reason. The necessary funds for the purchase of equipment were provided through the cooperative efforts of the executive director and the trustees of Stormont-Vail Hospitals.

A number of interested physicians asked for a preparatory orientation course in the diagnostic and therapeutic uses of radioisotopes. The course, "The Medical Application of Radioactive Isotopes" (32 lecture hours), was arranged through the University of Kansas Extension Division, and was given by one of the writers (F.E.H.) to 25 enrolled physicians.

Our first isotope clinic was held in July, 1951. Diagnostic tracer studies with I^{131} were done on seven patients, and one patient in thyroid crisis was treated with I^{131}. Dr. Kenneth E. Corrigan, director of radiation research and in charge of the isotope laboratory in Harper Hospital, Detroit, Michigan, assisted with the studies and gave additional impetus to the program with illustrated lectures to the physicians.

It was indicated earlier that radioactive iodine, I^{131}, has at present wider application in clinical medicine than any other radioisotope. This follows in consequence of its almost ideal physical properties—a convenient half-life, the emission of beta particles which impart a localized tissue dose, and the emission of gamma rays which permit external measurements in vivo. It has also the rare biochemical property of almost perfect localization in the thyroid gland within a few hours after its administration.

It has been established that the measurement of the rate of uptake and the total uptake of I^{131} by the thyroid gland, together with excretion studies, yields diagnostic information which is more dependable than the measurement of the basal metabolic rate.[1] This is unquestionably true in the case of uncooperative patients and children.

The therapeutic use of I^{131} in the control of hyperthyroidism appears to be the treatment of choice in selected cases. Complete or partial thyroidectomy through accurate control of dose can be performed without hospitalization of the patient.

For these and other reasons, our radioisotopes program at Topeka was initiated with the diagnostic use, and quickly expanded to include the therapeutic use of I^{131}.

The amount of information gained from these studies is, of course, a function of the amount of time devoted to the work. The writers have felt that detailed measurements of uptake in various portions of the thyroid yield diagnostic information well worth the additional time required. Careful surveys are, therefore, made on each patient four times during the first 24 hours by placing a shielded end-window Geiger counter in contact with the skin over the thyroid area. An indicating, computing rate meter, the Raychronometer, is used to determine the counting rate at each point of measurement. The resulting data furnish a clear picture of the rate of uptake in various portions of the gland. In addition to asymmetry of function, toxic adenomas, aberrant thyroid tissue, and other abnormalities are clearly revealed. Such information, not obtainable from the widely used distance-count method, is often of critical importance to the surgeon if surgical intervention is indicated.

Early research work on the diagnostic use of I^{131}

almost invariably included measurement of the rate of excretion in the urine. There is little doubt of the diagnostic value of such measurements,[2] but excretion measurements are, when performed by customary methods, exceedingly time consuming. The usual method is to assay a portion of each specimen, either by evaporating the sample to dryness or by direct counting of the wet sample. The time involved and the trouble of saving all excreted specimens have tended to discourage the making of excretion studies in routine clinical use.

Our conviction of the value of excretion studies has led to the development in our laboratory of a rapid, semi-automatic method[3] of making the assays required by the excretion studies. The assay of all specimens excreted by 10 patients in 36 hours can now be performed by one person in a period of about four hours. The diagnostic value of the excretion studies is well worth this expenditure of time.

It should be borne in mind that this program was initiated with the objective of testing the feasibility of bringing the clinical advantages of the radioactive isotope method into community hospital practice. No attempt has been made to solicit cases nor to influence physicians in favor of this method. The number of cases accepted for diagnosis has been held to that which could be handled within limitations of a predetermined time and without sacrifice of completeness of study.

To date, eight monthly sessions have been held. Fifty-eight radioactive iodine tracer studies have been made, and 18 therapeutic doses of I^{131} administered for thyrotoxicosis. In addition, two cases of polycythemia vera, one multiple myeloma, and one case of skeletal metastases have been treated with radioactive phosphorus.

It is our future aim to further expand the isotope laboratory to accommodate the increasing patient load and to include other radioactive materials as they become available. This, we believe, can be accomplished by: (1) substituting mechanical devices for technical assistance wherever possible; and (2) by training existing hospital personnel to do much of the routine work, including sample measurements, thus giving the radiophysicist and radiologist more time to analyze and to evaluate the results.

Finally, it is hoped that our experience may be of some benefit to other community medical centers interested in establishing a clinical isotope program. To these ends, Dr. Franklin D. Murphy, chancellor of the University of Kansas, has endorsed our project and pledged the continued support of the University of Kansas for technical assistance within the limits of its facilities.

Bibliography

1. Jaffe, Henry L., and Ottoman, Richard E., Radioiodine Tracer Study, J.A.M.A., June 10, 1950, Vol. 143, No. 6, page 519.

2. Corrigan, Kenneth E., and Hayden, Henrietta S., Diagnostic Use of Radioactive Tracers, Harper Hospital Bulletin, February, 1948, Vol. 6, No. 1, pages 1-10.

3. Descriptive article to be published.

AN APOLOGY

The Editorial Board regrets that the May issue of the Journal was delayed considerably beyond its normal delivery date. The much used and trite explanation "for reasons beyond our control" actually applies in this instance. The printer was unable to perform his usual services for the Journal at the scheduled time last month, and in spite of some effort on the part of the editorial staff this temporary problem could not be adjusted. The Editorial Board is now of the opinion that a similar occurrence will not soon be repeated and wishes to thank its readers for their indulgence.

Recurrent Hyperthyroidism with Thyroid Crisis and Ventricular Tachycardia Successfully Treated with Radioactive Iodine (I^{131}): A Case Report*

D. R. Bedford, M.D., F. E. Hoecker, Ph.D.,† and H. L. Hiebert, M.D.‡**

Topeka, Kansas

S. L., a 65-year-old white female teacher, was brought to St. Francis Hospital by ambulance on July 13, 1951, and was admitted in severe thyroid crisis complicated by congestive failure with rapid irregular heart rate.

Chief Complaint: Shortness of breath, palpitation, extreme nervousness, panic and fright, insomnia, tremulousness, loss of weight, and painful swollen knees.

Present Illness: Six months before, patient began to notice increasing nervousness, loss of weight with continued good appetite, insomnia, progressive exertional dyspnea and, finally, nocturnal dyspnea, swollen lower extremities, and some indigestion and gas. During several weeks before admission, all these symptoms had increased, necessitating increasing amounts of bed-rest. Seven to 10 days before admission, complete bed-rest became necessary and the patient developed increasing periods of panic and apnea.

Past History: This patient had been hospitalized on numerous occasions, beginning in February, 1923, with right thyroid lobectomy (gland size of lemon) and resection of lower pole of left lobe (one-half size of a man's fist). The pathological diagnosis was adenomatous colloid goiter showing small foci of hyperplasia and degeneration; chronic thyroiditis. The second admission was in July, 1938, for heat exhaustion, thyrotoxicosis. At that time her blood pressure was 140/90, with regular rhythm on admission and auricular flutter a week later.

She was hospitalized in February, 1939, with a diagnosis of toxic adenoma of thyroid, left; subacute pharyngitis; auricular fibrillation. She was treated with Lugol's solution and digitalis.

In July, 1939, she underwent a complete left thyroid lobectomy. The weight of the gland was 42 grams. Microscopic study revealed hyperplasia. Her blood pressure was 156/84, regular rhythm and later auricular fibrillation. There was no cardiac enlargement.

The patient was hospitalized again in April, 1947, for hyperthyroidism, arthritis of fingers, and swelling of ankles during the day. Her blood pressure was 170/90, regular rhythm.

In July, 1947, she was admitted for arthritis of hands, fingers, knees and spine. Examination showed palpitation and auricular fibrillation. Again in September, 1947, she was hospitalized for the same condition.

On the last previous admission, in July, 1950, the diagnosis was hyperthyroidism, arthritis, and auricular fibrillation. Her blood pressure was 170/90. Findings were as follows: apical systolic murmur, two plus, enlarged heart; basal metabolism rate, plus 15. She was placed on propylthiouracil, 50 milligrams three times a day, but she voluntarily discontinued the drug after one month.

Physical Examination: Examination at time of admission, with the patient propped up in bed, revealed her gasping for breath. Her eyes were bright, wide, and held a wild stare. The neck veins were pulsating prominently in irregular rhythm. An old healed thyroidectomy scar was in evidence, but no thyroid tissue could be definitely palpated. She had frequent episodes of apnea when she seemed to stop breathing, almost stop living. During those episodes the pulse seemed to stop part of the time, and then beat irregularly and rapidly, the rate in the vicinity of 160 to 180. The chest was symmetrical; both sides moved equally with irregular, gasping respirations. Moist rales were present in both bases, more marked on the right. The movements of the upper extremities were characterized as flighty and weak, and there was a tremor. The pupils reacted to light and accommodation. Cranial nerves were grossly normal. There were no cervical or axillary nodes. Breasts were small and atrophic and contained no palpable masses. Blood pressure was variable, ranging from 160/90 to 180/105. Heart tones were of rather poor quality. The rate was so rapid that it was difficult to make out any murmurs. The abdomen was moderately distended; the liver was down two fingers, and was tender. The lower extremities were characterized by large knee joints which were tender to palpation; knee joint noise could be heard, and movement could be felt. There was 1-2 plus pitting

*Presented at meeting of Golden Belt Medical Society, Topeka, Kansas, January 10, 1952. From the Medical Service of St. Francis Hospital and the Isotope Service of Stormont-Vail Hospitals.

**Internist.

†Physicist.

‡Radiologist.

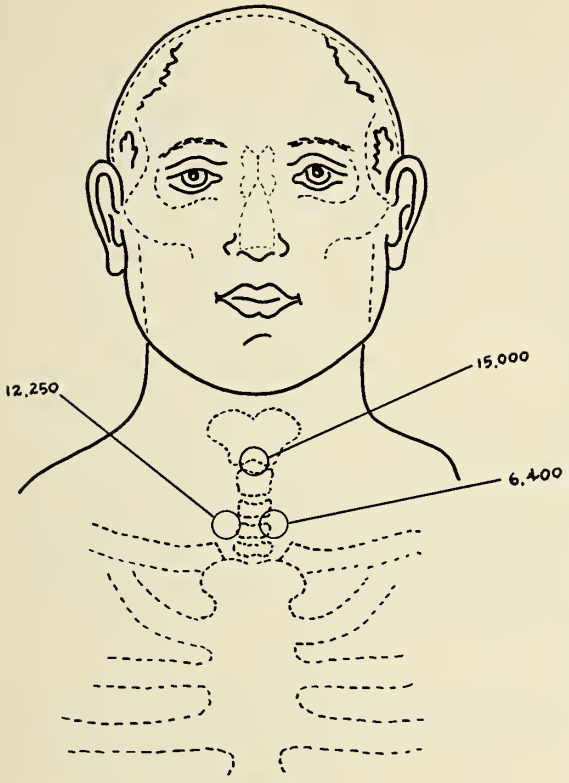


Figure 1-A

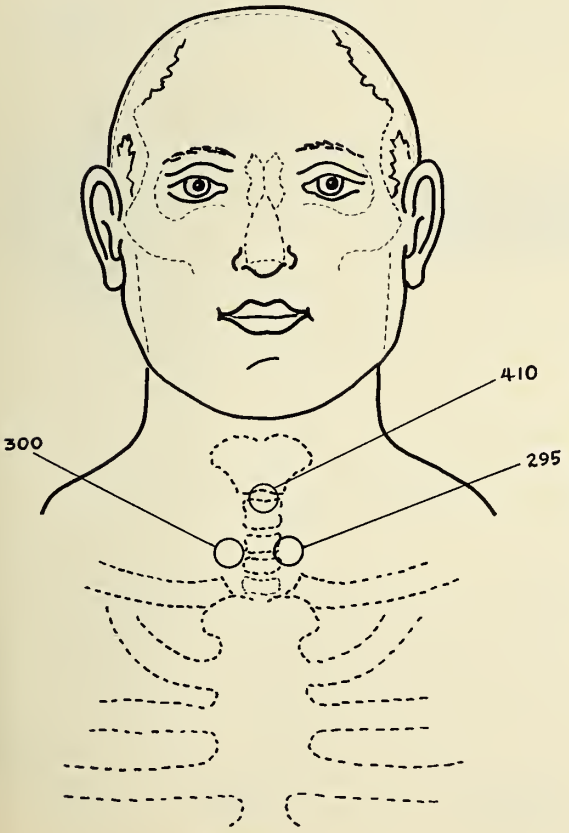


Figure 1-B

edema of the lower extremities.

Clinical Evaluation: A desperately ill 65-year-old woman in congestive failure with auricular fibrillation and frequent runs of ventricular tachycardia, in a poor state of nutrition, with no thyroid tissue definitely palpable, was thought to be in severe thyroid crisis. Confirmation of the diagnosis of hyperthyroidism with localization and permanent eradication of the hyperactive thyroid tissue with a minimum of risk and toxicity seemed desirable. Radioactive iodine was chosen as the ideal agent for both diagnostic and therapeutic purposes.

Radioactive Studies: A tracer dose of 50 microcuries of I^{131} was administered orally in orange juice on July 14, 1951. Serial surface counts were made with a Geiger Meuller counter for 21 hours. Highest counts (15,000 counts per minute, or approximately three times the normal) were obtained over the pyramidal lobe area—more than twice the normal counts over the right lobe and slightly elevated counts over the left lobe (See Figure 1-A). The tracer study indicated marked hyperactivity of recurrent thyroid tissue in the pyramidal lobe and in the right lobe of the thyroid.

An excretion curve was plotted over a 19-hour period with a total excretion of 18.7 per cent of the dose (See Figure 2). The shape of the curve is atypical of uncomplicated hyperthyroidism. The

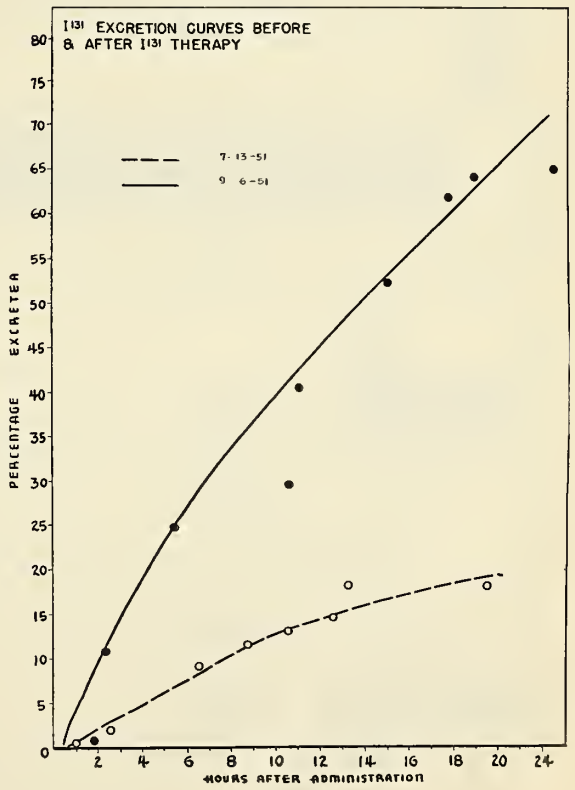


Figure 2

slope of the curve reflects lingering radioactive iodine in the stomach (prolonged high counts over the epigastrium) and elevated counts over the liver and thigh, incident to congestive heart failure.[1]

A therapy dose of 10 millicuries of I^{131} was administered on July 15, 1951. Propylthiouracil was immediately started to help retain and thus enhance radioactivity, as well as for its own anti-thyroid activity in a very toxic patient. Thyroiditis did not develop and there was no temporary increase of hyperthyroidism.

Approximately two months later, on September 6, 1951, the tracer study was repeated, using the same dose of 50 microcuries of I^{131}. Highest surface counts over comparable areas of the thyroid area reduced to 410 counts per minute from 15,000, indicating little remaining thyroid function (See Figure 1-B).

An excretion curve which is typical in shape of hypothyroidism was plotted over a 24-hour period with a total excretion of 64.9 per cent of the dose. The tracer study indicates hypothyroidism (See Figure 2). Continued excretion of the iodine was indicated at the termination of the study.

Clinical Course: Figure 3 shows in graphic form the clinical course and summarizes the pertinent information as to diagnostic and therapeutic measures. In Figure 4, the five electrocardiograms give an exceptionally good concept of her clinical course. The clinical diagnosis was easily and rapidly confirmed. The critically ill extremely toxic patient rapidly became non-toxic, in fact slightly hypothyroid (-11 B.M.R. 460 mgm. per cent cholesterol) three months after therapy. Desiccated thyroid extract, U.S.P. 30 mgm. daily, was started.

Summary

A 65-year-old woman with thyroid crisis and congestive heart failure, in poor nutritional status, presented herself after having had two previous thyroidectomies and no palpable thyroid tissue. I^{131} as a diagnostic and therapeutic agent, was selected because of its apparent absolute minimum as to risk and toxicity. The excellent clinical results have been maintained 10 months.

References

1. Birkhill, F. R., Corrigan, K. E., and Hayden, H. S.: The Metabolism of Radioactive Iodine (I-131) in Patients with Cardiac Disease, Am. Jnl. Roentgenol., Jan., 1952.

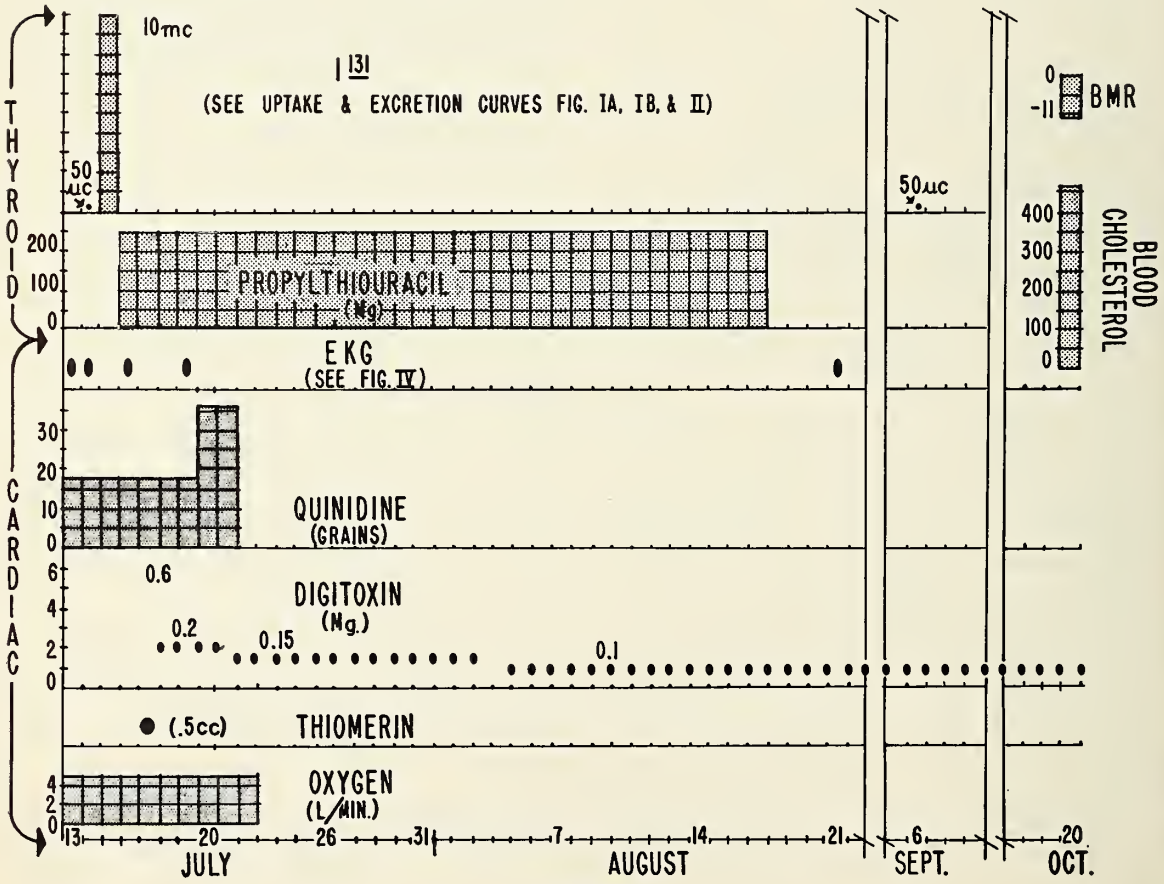


Figure 3

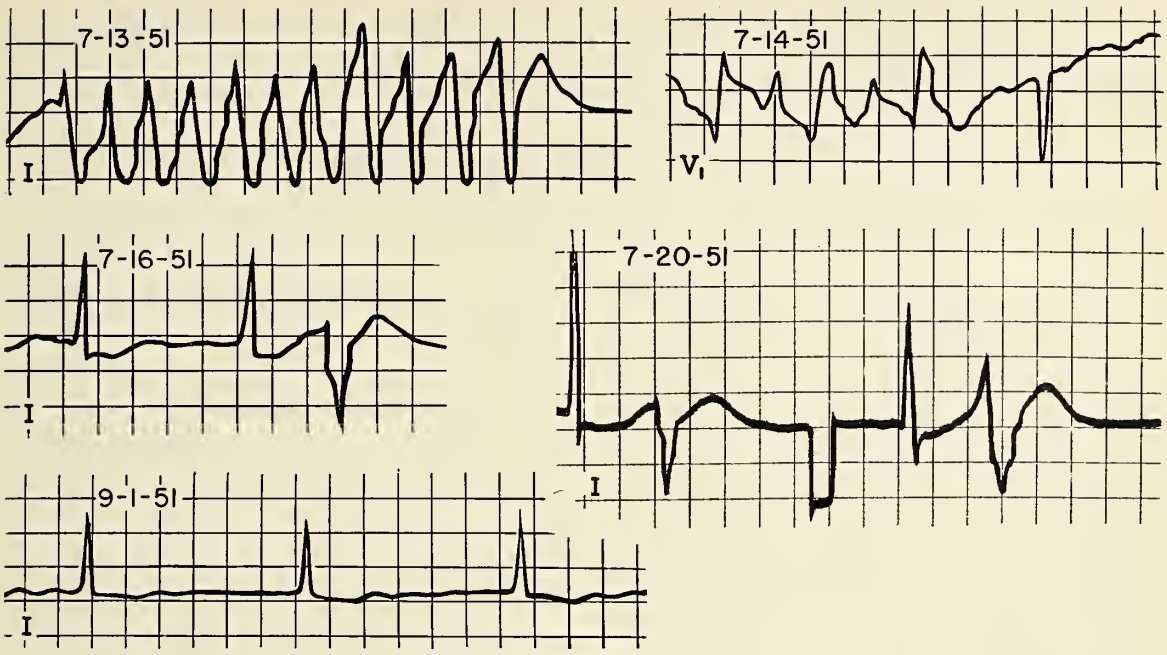


Figure 4

7-13-51—One of several runs of ventricular tachycardia (240/min.) from tracing taken on admission. Most of tracing showed auricular fibrillation with a ventricular rate 100+/min.

7-14-51—ECG taken second hospital day shows a decrease in frequency, rate, and duration of paroxysmal tachycardia.

7-16-51—On the fourth hospital day there were occasional ventricular premature contractions from one focus.

7-20-51—On the eighth hospital day there were frequent ventricular premature contractions from multiple foci.

9-1-51—Seven weeks after admission, auricular fibrillation with ventricular rate less than 60/min. No ectopic beats.

CHANGE OF ADDRESS

Please notify the Kansas Medical Society of any changes in address.

Help keep the mailing list up to date.

The Use of Tracheotomy, Intermittent Positive Pressure and Sedation in the Treatment of Children Ill With Poliomyelitis*

Jacqueline Baumeister, M.D., Mary J. Blood, M.D., Alice Marsh, M.D., and Alex Roth, M.D.
Kansas City, Kansas

A considerable improvement in mortality has been noted among children admitted to the Pediatric Service with acute poliomyelitis during the last three years. It is our impression that the improved mortality has resulted from adopting newer methods of treating those who are severely ill with respiratory complications. Since these newer methods of treatment are still in the process of being evaluated, and since our series of cases is small, we are not attempting to make a definitive appraisal of their value but are simply presenting our results and our views concerning the role of these technics in producing the results obtained.

The changes in treatment consisted in (1) wider use of tracheotomy, (2) employment of intermittent positive pressure through the tracheotomy tube, and (3) administration of heavy sedation in certain selected cases.

The total number of cases admitted each year and their classification into the four conventional groups, non-paralytic, spinal, bulbar and bulbo-spinal, are shown in Table I. Little is to be gained from these data, since they do not indicate the number of severely ill children. Many children in this series had minor bulbar or spinal involvement and made the usual uneventful recovery. In this paper we are concerned only with those who were a great source of worry to the staff and those for whose survival there was serious concern.

Table I

Incidence of types of involvement in children with acute poliomyelitis by year of admission.

Year	Non-paralytic	Spinal-paralytic	Bulbar	Bulbo-spinal	Total
1949	13	47	4	16	80
1950	30	47	8	8	93
1951	43	42	11	15	111
Total	86	136	23	39	284

The criteria used in this report for determining a severely ill child with respiratory embarrassment were that the child either was placed in a respirator, had a tracheotomy or needed oxygen for an extended period of time. One or more of the present authors were personally involved in the care of all the children classified as severely ill and listed in Table II.

Table II

Incidence of severely ill children, total deaths and case fatality rate in children with acute poliomyelitis by year of admission.

Year	Total cases	Severely ill	Total deaths	Case fatality rate
1949	80	12	7	8.7%
1950	93	5	4	4.3%
1951	111	15	2	1.8%

It can be seen from the data in Table II that beginning with 1949 fewer children died in each successive year even though the total number of cases increased each year. There was considerable fluctuation in the number of children diagnosed as severely ill, but in 1951, when only two deaths occurred among 111 cases admitted, there was both the largest number of total cases and of severely ill children. This was also the year in which the newer technics of treatment had their widest application.

Tracheotomy: Tracheotomy for children with bulbar poliomyelitis was suggested as early as 1932,[1] but was not used generally until the latter part of the past decade.[3] The incidence with which this operation has been employed in the present series is shown in Table III. About 50 per cent of all the severely ill children were tracheotomized. A few more were done in 1951 than in the other two years.

Table III

Incidence of children with bulbar signs (including bulbar and bulbo-spinal involvement) of poliomyelitis, severely ill children and tracheotomized children by year of admission.

Year	Total bulbar cases	Severely ill children	Tracheotomized children
1949	20	12	5
1950	16	5	2
1951	26	15	8
Total	62	32	15

No rigid indications for doing a tracheotomy have been adopted. In general, the following were considered as indications: either repeated pooling of secretions in the pharynx in the presence of a weak or absent gag reflex, or a marked depression of the

*From the Department of Pediatrics, University of Kansas Medical School.

gag and cough reflexes associated with feeble respirations and high fever. Tracheotomy was not done unless it was felt bulbar symptoms were severe and might be prolonged for several days. In the three years covered by this survey, there were 62 children with bulbar or bulbo-spinal involvement and only 15 of these were tracheotomized. The value of tracheotomy in a debatable situation is illustrated by the following case history:

Case 1, M.T., Hospital No. 51-30701, an 11-year-old white girl, was admitted to KUMC September 25, 1951, with symptoms of bulbar polio for the previous 24 hours. On admission she appeared acutely ill. The gag reflex was absent; she was unable to swallow and there was some mucopurulent material in the oropharynx but not enough to produce difficulty. During the first 24 hours following admission she had no obvious respiratory difficulty, and careful suctioning of the posterior pharynx kept her airway clear. She continued to be toxic and had a temperature of 104.6. The lungs were clear and there was no visible cyanosis. A tracheotomy was done at this time because the gag and swallow reflexes were absent, her temperature was high and further progression of the disease was feared. The trachea was found to be almost completely obstructed with thick purulent material. Her postoperative course was uneventful and she regained the ability to swallow in three days. It was felt that the tracheotomy, which had been a debatable procedure before it was done, may have been a life-saving measure because it served to clear the trachea of its unsuspected obstruction.

Intermittent positive pressure: This procedure was introduced on the Pediatric Service in 1951. The positive pressure was given during the respiratory phase only, expiration being entirely passive.[2] The pressure was carefully kept under a maximum of 15 mm. Hg. If 100 per cent oxygen was administered by this method through the tracheotomy tube, it was usually allowed to continue for no more than 15 to 20 minutes out of every hour. If room air or 50 per cent oxygen was used, the intermittent positive pressure was used continuously. Four children were treated with intermittent positive pressure* in 1951. All four had signs of anoxia which was not relieved by tracheotomy or a respirator. The case histories of the four patients (Cases 2, 3, 4 and 6) are presented below.

Case 2, J.E., Hospital No. 51-32619, a seven-year-old white girl, was admitted to KUMC October 31, 1951, with symptoms of bulbar polio for the previous 24 hours. On admission she had a nasal voice and greatly diminished gag reflex. She was placed in an oxygen tent and appeared quite comfortable. The next day she was unable to swallow. The gag and cough reflexes were absent and considerable mucus was pooled in her pharynx. Hence, a tracheotomy was done. On the morning of the second hospital day weakness of the respiratory muscles was noticed and the child was placed in a chest respirator. She coordinated well with the machine until late in the afternoon when she became very restless, moved her extremities aimlessly and her pulse became weak and rapid. Her color was poor and she did not respond well. Intermittent positive pressure was started through the tracheotomy tube with immediate improvement of color, pulse and restlessness. When the positive pressure was removed for as short a time as 60 seconds, she reverted to her former condition. Twelve hours later she was placed in a tank respirator with marked clearing of her sensorium, and she appeared to have passed a crisis. Intermittent positive pressure was then continued for seven more days, during which time she showed steady improvement. At no time were any detrimental effects of the positive pressure noted.

Case 3, E.M., Hospital No. 51-31856, a 12-year-old white male, was admitted to KUMC with symptoms of poliomyelitis for the previous six days. On admission he was found to be almost quadriplegic, and he had had urinary retention with overflow for the previous two days. His intercostal muscles were paralyzed, but he had good diaphragmatic function. Gag reflex was diminished, but cough and swallowing reflexes were present. He was given nasal oxygen and placed in an open Drinker respirator to acquaint him with the machine. His urinary output was regulated by administration of furmethide, 2.5 mg. every eight hours. On the second hospital day, gag and cough reflexes were absent and the patient was having hallucinations. A tracheotomy was performed under avertin anesthesia, 40 mg. per kg. The patient was given oxygen by intermittent positive pressure through the tracheotomy tube. One hour later the patient was rational. He had no difficulty adjusting to the intermittent positive pressure apparatus and his subsequent course was one of gradual improvement. He was slowly "weaned" from the respirator over a period of four weeks.

Case 4, T.S., Hospital No. 51-29606, a 10-year-old white boy, was admitted to KUMC August 27, 1951, with symptoms of bulbar polio for three days prior to admission. He was poorly nourished and was acutely ill. He talked with a nasal twang, had a greatly diminished gag reflex and was unable to swallow. His temperature was 101.8. Because of his inability to swallow his secretions, a tracheotomy was performed soon after admission. Later in the day he began having respiratory difficulty and was placed in a tank respirator. The next morning in-

*The apparatus used was made by Dr. Ernst T. Moerch, assistant professor of anesthesiology.

termittent positive pressure was administered. Shortly after positive pressure was begun, he became more alert and less restless. Intermittent positive pressure oxygen was continued for three days without complication. On the sixth hospital day, atelectasis of the left lower lobe was found, but the lung reexpanded following removal of secretions from the trachea by bronchoscopy. Considerable difficulty was experienced in "weaning" the patient from the tank respirator, but his dependence on the machine was gradually overcome. At the time of discharge on September 25, 1951, the only residual symptom was a slight nasal quality to his speech. He has been seen in the Out-patient Clinic several times since discharge and no residual signs of bulbar paralysis were found.

Sedation: Heavy sedation was employed by us for the first time in 1951. Three patients were given moderately large amounts of avertin by rectum for widely varying reasons, and all were treated successfully. It was used in Case 3, mentioned above, to facilitate the tracheotomy. A brief account of the acute illness of the two remaining patients is given below.

Case 5, W.C., Hospital No. 51-29973, a seven-year-old white boy, was admitted to KUMC September 30, 1951, with symptoms of poliomyelitis which had been present for 24 hours. On the second hospital day progressive respiratory weakness was noted. He was placed in an oxygen tent, but was so apprehensive that he had to be taken out again. His fears seemed to be related to two operations which he had had at the age of three and four years respectively for incision and drainage of a thyroglossal duct cyst. He was terrified by his present illness and by the hospital, and repeatedly expressed his belief that he would be dead shortly. Attempts to place him in a Drinker respirator were unsuccessful, because of his apprehension and consequent failure to coordinate with the machine. When he started to pool secretions in his pharynx, a tracheotomy seemed unavoidable. In view of his psychological difficulties it seemed probable that tracheotomy without sedation might prove fatal. It was decided to give him avertin with amylene hydrate rectally. Within five minutes of receiving 60 mg. per kg. there was a profound improvement in his condition. His pulse became stronger and fell from 140 to 108. The copious outpouring of secretions ceased and there was no more pooling. His respirations synchronized with the tank respirator and his color improved. Even after the effects of the drug had worn off, he continued to do well in the respirator and no further sedation was required. Having successfully adapted to the respirator, considerable difficulty was encountered for psychological reasons in "weaning" him away from the respirator.

Case 6, R.B., Hospital No. 51-30559, a four-year-old white boy, was admitted to KUMC on October 10, 1951, with symptoms of poliomyelitis for the previous five days. On admission he appeared acutely ill and lethargic. Breathing was jerky, fairly regular, but with occasional double inspirations. There was slight flaring of the alae nasi. Color was good and gag reflex was present. The patient was placed in a tank respirator and nasal oxygen was administered. Over the next two days his sensorium cleared, but his intercostals and diaphragm became completely paralyzed and the gag reflex disappeared. On the fourth hospital day, the patient suddenly had convulsive movements of the lips and both hands and became stuporous. Positive pressure by mask was administered without improvement. Avertin, 40 mg. per kg., given rectally partially controlled the convulsions, but it became impossible to open the patient's mouth and soon afterward his color became poor, his pulse rate rose to 168 and became irregular. His blood pressure was 145 systolic. Tracheotomy was carried out immediately and the child was transferred to a tank respirator with intermittent positive pressure attachment. Bronchoscopy revealed profuse mucoid material in the trachea. The patient's color improved, but there was no appreciable drop in pulse or blood pressure. One hour later convulsions recurred and rectal avertin, 60 mg. per kg., was again needed to bring them under control. His course from then on was one of gradual improvement. He began to respond three hours later, and his pulse dropped to 120 over the next five hours. He received intermittent positive pressure for two weeks, after which a gradual "weaning" from the respirator was carried out without much difficulty. The only complication noted after tracheotomy was the tendency to obstruction of the bronchial tree by dried mucus secretions in spite of all efforts to keep the airway moist. The patient was discharged December 15, 1951, and is receiving physical therapy for residual weakness of almost all muscle groups.

Discussion

The many variables that obtain among children with respiratory failure during the acute phase of poliomyelitis preclude making any positive claims for any particular therapeutic procedure. Even a falling mortality rate, such as was demonstrated in the present report, may be dependent on a lower incidence of severely ill children rather than on any improvement in the methods of treatment. In this report we are drawing conclusions which were based on clinical evaluations, recognizing that the limitations of the observations which are based on the small number of patients studied are always open to criticism. However, we feel justified in re-

porting our results using these newer methods, because the mortality rate has been lower in succeeding years in spite of the fact that there seemed to be no decrease in the incidence of severely ill children and because in individual cases lives seemed to have been saved by the timely use of tracheotomy, intermittent positive pressure, heavy sedation, or all three used together. It can be definitely stated that no harmful effects were observed as the result of the employment of any one of these methods or combinations of them.

There are certain conditions and precautions that need to be observed to obtain the best results. The most important of these are a highly trained nursing service and close cooperation among pediatrician, otolaryngologist and anesthetist. Nurses must be available around the clock for patients who have been tracheotomized or are receiving intermittent positive pressure or heavy sedation, and the nurses must be familiar with the care of the tracheotomized child as well as the workings of the different types of machinery employed. It is the physician's responsibility to see that the nurses are competently trained in these special tasks. The ready availability of physicians on a moment's notice is also imperative, as severe changes take place with great rapidity, calling for repeated emergency action.

Tracheotomy may have to be done on an emergency basis. It was carried out successfully in Case 6 as an emergency procedure by one of the resident pediatricians. The best results should be obtained when time is not a factor and all the necessary precautions can be taken, such as having a bronchoscope in place with oxygen being administered through it before the tracheotomy is done.

It is difficult to establish any hard and fast criteria for doing a tracheotomy on patients with acute poliomyelitis. There was considerable disagreement concerning the necessity of doing a tracheotomy on Case 1, because there were no signs of obstruction or distress. The patient had an absent gag reflex, could not swallow, was feeble and had a high fever. The tracheotomy was done because it was felt that her margin of safety was small. Everyone was surprised when her trachea was found to be almost full of purulent material.

Undoubtedly some unnecessary tracheotomies will be done, but it will be difficult to avoid these if patients like the above are to be treated successfully. The only dangers from doing a tracheotomy are or should be those attendant upon the postoperative care, particularly keeping the trachea patent. Oxygen or room air with a high water vapor content is essential for the tracheotomized child. In addition, a few drops of normal saline should be introduced into the trachea at 15-minute intervals and suction carried out with the appropriate technic every half hour. Occasionally bronchoscopy will have to be resorted to in order to clear the lower trachea and bronchi of their accumulated secretions and to overcome the atelectasis that is sometimes encountered in the tracheotomized child.

Intermittent positive pressure is the method of choice in combating pulmonary edema, a common complication in the child severely ill with poliomyelitis. Positive pressure that is constant tends to exhaust the patient rather rapidly, as the patient is forced to make an active expiratory effort. Intermittent positive pressure has the advantage of making expiration a passive affair.

It is impractical to attempt positive pressure using a face mask unless the child is unconscious, as children will not cooperate and actually will fight the face mask, making themselves worse. If a tracheotomy has been done, the positive pressure apparatus can be attached to the tracheotomy tube and used indefinitely regardless of whether or not the child is cooperative or conscious. Frequently children demanded the positive pressure and seemed to become as psychologically dependent on it as they did on the respirators. The gas given through the positive pressure machine should be saturated with water before it is introduced into the tracheotomy tube. One hundred per cent oxygen should be used for only brief intervals of about 15 minutes to avoid the possibility of injury to the lung. In children reported here the use of intermittent positive pressure appeared to have dramatic and beneficial results.

Sedation has a definite role in the treatment of the child who is severely ill with poliomyelitis, but its use should obviously be restricted. It should not be used unless all of the equipment and personnel for combating respiratory depression are at hand. These include oxygen, respirators, intermittent positive pressure, anesthetist, otolaryngologist and nursing personnel.

Respiratory depression was not encountered in any of the three patients on whom rectal avertin in moderate dosage was used. In fact in the instance of W.C. (Case 5), the administration of rectal avertin brought about a marked and immediate improvement in condition, which was rapidly deteriorating because of his great apprehension. He said he knew he was going to die and be buried immediately. Fear was written all over his face. He was pooling secretions in his pharynx in large amounts and was fighting any effort to give him oxygen or put him in a respirator. The avertin was given in order to carry out a tracheotomy, which it was felt he could not tolerate if done under local anesthetic, because of his profound anxiety. The change in this patient within a few minutes of receiving the avertin was remarkable. He adjusted completely to the tank respirator. No more pooling

of secretions in his pharynx occurred and tracheotomy was permanently forestalled. Having adjusted to the respirator, there was no need to repeat the sedation although he remained in the respirator for many weeks. The difficulties encountered in getting him out of the respirator were almost as great as those required to get him in it and were largely psychologic.

Sedation was used in R.B. (Case 6) to stop convulsions, which probably were the result of anoxia. Convulsions occasionally occur in children with respiratory difficulties and almost certainly indicate that oxygen exchange has been insufficient, although visible cyanosis may not have been noted. Immediate steps need to be taken to combat anoxia as well as convulsions, which produce more anoxia. Sedation to stop convulsions seems justified, since the usual methods of relieving anoxia are usually not immediately effective, particularly if pulmonary edema is present, and further anoxia produced by the convulsive state can only make a poor situation worse. Sedation was used in the third case in order to do a tracheotomy. The patient was hallucinating and irrational, and it was thought that the procedure could be more effectively and safely carried out if he were quieted. No difficulties were encountered with the use of sedation in any of the three children, but emphasis is placed on the fact that all the necessary equipment and personnel were available in case the need arose.

Summary

The use of tracheotomy, intermittent positive pressure and heavy sedation in selected individuals who were seriously ill with acute poliomyelitis has been evaluated in the light of the clinical results. It is definitely felt that none of these technics has done any harm to any child on whom they were used and that the lives of some of the children were saved by their timely use. The limitations and dangers of the procedures have been pointed out.

Bibliography

1. Wilson, J. L., Acute Anterior Poliomyelitis, New Eng. Jour. Med. 206:887, 1932.
2. Bower, A. G., Bennett, V. R., Dillion, J. B., and Axelrod, B., Investigation on the Care and Treatment of Poliomyelitis Patients, Annals of Western Medicine and Surgery 4:561, Oct.-Nov., 1950.
3. Galloway, T. C., and Elsen, J., Bulbar Poliomyelitis: a Respiratory Problem, Medicine 9:151, Feb., 1951.

PATRONIZE JOURNAL ADVERTISERS

It is advertisers who make possible the publication of the Journal in its present form. They are deserving of your patronage.

Exsanguination From Papilloma of Jejunum

Cecil C. Hunnicutt, M.D.
Sabetha, Kansas

Although neoplastic lesions do occur in the small bowel, they are encountered so infrequently that when one is faced with a sudden, severe bowel hemorrhage, such a lesion is certainly not the first to come to mind. The case here being reported is so dramatic that it bears emphasis to the necessity of at least considering the possibility of a small bowel lesion.

On April 30, 1947, G. E., a 38-year-old, robust, white farmer, while sitting quietly in a chair suddenly felt faint and weak. He broke out in a sweat, had a desire to defecate, and then collapsed on the floor. Simultaneously he expelled a large, bloody stool. He was taken immediately to the hospital but was not seen by us until about 10 hours after the original episode. We were called in following a second severe hemorrhage. With the second hemorrhage he became nauseated and vomited.

Inquiry into the history revealed inflammatory rheumatism in childhood with no known sequellae. He had had "piles" for the past year. About four or five months prior to this illness he noted a single bloody stool which was attributed to piles. During the week immediately preceding admission he had observed several black stools. There had been no gastro-intestinal discomfort, no indigestion, no change in bowel habit. The only symptom described was a feeling of "numbness" in the epigastrium noted the evening before admission. He had slept well and "just came to town to loaf a while."

Examination revealed a well developed, well nourished, white male about 40 years of age. Blood pressure on admission at 11:00 a.m. was not recorded. Nursing notes at that time indicated that he was "pale, cold, and covered with perspiration." When seen at 9:00 p.m., following the second hemorrhage, he appeared acutely ill. His pulse was thready but slow. His skin was pale and clammy. Blood pressure was 68/0. He evidenced great anxiety. Morphine sulphate gr. ¼ was given slowly I.V. After the blood was taken for typing, 500 cc. of plasma was started. Fifteen minutes later the blood pressure had risen to 92/20. The plasma was followed by citrated whole blood. At the end of two hours the blood pressure was 104/40. His skin had become dry and warm. The pallor had disappeared. He remained comfortable all night.

On the day of admission, before the second hemorrhage, his blood count showed RBC 2,960,000 with Hb. 5.5 gm. The following day, in spite of 2500 cc. of whole blood, the red count was only 2,700,000 with Hb. 6.7 gm.

During the following 20 days, he had 16 additional episodes of bleeding. His condition remained so precarious that the accomplishment of necessary examination procedures was hazardous. For instance, on the seventh hospital day he was slated for gastro-intestinal x-ray study. Because he was inadvertently served breakfast, that procedure was postponed. Later that same day he had a severe hemorrhage so pronounced that he almost developed circulatory collapse.

However, during these three weeks it was possible to do a satisfactory proctosigmoidoscopy (to the 25 cm. level), a complete x-ray study of the intestinal tract, and an x-ray of the chest. None of these procedures yielded information of specific value, so we were left with no alternative but an exploratory laparotomy.

On the 23rd hospital day, under spinal anesthesia, an exploratory laparotomy was performed. Blood could be seen in the lumen of the small bowel. About 30 cm. from the ligament of Treitz a nodule was palpated on the mesenteric border in the lumen of the jejunum. Incision into the bowel at this point revealed a sessile papilloma about 1.5 cm. in diameter. Small fresh blood clots clung to the surface, but no active bleeding was taking place. About 15 cm. of bowel was resected and continuity reestablished by end to end anastomosis. During and after surgery he received 1000 cc. of glucose and saline and 500 cc. of whole blood. Convalescence was wholly uneventful. He left the hospital on the eighth postoperative day and has remained in good health throughout the ensuing five years.

Pathological examination of the specimen revealed a benign papilloma.

Summary: A case is presented with massive hemorrhage from a benign papilloma of the jejunum which in 21 days exhibited at least 18 episodes of bleeding, three of which produced near circulatory collapse. During the course of treatment, one pint of plasma and 21 pints of whole blood were required. Recovery was complete.

PRESIDENT'S PAGE

Dear Doctor:

The 1952 meeting of the Kansas Medical Society has now taken its place in history. Altogether the meeting was a very enjoyable one with a very fine attendance and even finer spirit which was apparent on the part of those in attendance. The locale permitted its being staged in beautiful and completely adequate surroundings as far as the new Town House Hotel is concerned. The management, particularly Mr. Lew, went all out to make the event a most enjoyable one. Many old acquaintances were met again and old friendships renewed. Many new and highly pleasing acquaintances were made by the particularly fine group of younger men who are coming into the Society. Again the exhibitors, to whom we owe so much, were very loyal in their support although working in rather inadequate quarters. Our many thanks to them. We were most royally entertained by the Wyandotte County Society, who went all out to make the meeting and our stay an enjoyable one. Particularly we wish to thank Lee Leger and his committees for their untiring efforts.

We were particularly impressed by the interest, spirit and enthusiasm shown by the ladies of the Auxiliary. We were fortunate in being able to attend some of their functions. Their interest, sincerity and devotion to their purposes was impressive. We were particularly fortunate in having the national president, Mrs. Wahlquist, at the luncheon. Her vibrant personality was greatly enjoyed.

The Medical Assistants also had a very fine meeting with a particularly good attendance and marked interest. This organization is rapidly becoming an excellent group of people who are greatly interested in their work and devoted also to their purposes. They are rapidly becoming an important group in the medical scene. Their potentialities in the field of public relations can hardly be overestimated.

In our opinion these two groups should be given our complete cooperation and encouragement.

The year ahead will no doubt be a very eventful one. It could well be a very critical one as far as Kansas medicine is concerned. The summer time, which is already upon us, commonly is a time for vacations and relaxation. That is as it should be. However, let us realize and appreciate that we have a big job to do this year and let us resolve to devote ourselves to this task and take up next fall in a determined manner in order that the health of the people of Kansas and the work of the Kansas Medical Society may go along in the traditional pattern of the "Kansas Way" so admirably fashioned by the past.

Committee assignments will soon be forthcoming and we hope they have been well made. With the cooperation of the entire personnel of the Society plus the willing and sincere help of the Auxiliary and the Medical Assistants, plus some tireless work on the part of the officers, we cannot fail.



EDITORIAL COMMENT

New Dean at Medical School

An announcement of importance to the medical profession in Kansas was made on May 23, 1952, when the Board of Regents, meeting in Topeka, reported the selection of Dr. W. Clarke Wescoe, 32, as dean of the University of Kansas School of Medicine and director of the University of Kansas Medical Center. The appointment became effective on June 1.

Dr. Wescoe will fill the position left vacant on September 1, 1951, when Dr. Franklin D. Murphy became chancellor of the university. Since that time Dr. Edward H. Hashinger, of the department of medicine, has been serving as acting dean. Dr. Hashinger will remain on the staff and will continue work on the development of a basic program for treatment of diseases of the aged.



W. CLARKE WESCOE, M.D.

During the past year Dr. Wescoe, who is considered one of the outstanding young doctors in the field of research and pharmacology, has been professor of pharmacology and experimental medicine at the university. Research on the use of curare as an anesthetic, which he has been pursuing since 1945, is high on his list of interests.

The new dean received his medical degree from Cornell University in 1944, served his internship at New York Hospital, and was assistant resident there in 1945 and 1946. The following two years were spent at the Army chemical center in Maryland, and at the same time he was a research fellow in pharmacology at Cornell. He then became an instructor in pharmacology at Cornell and was made assistant professor in 1950, resigning there last year to come to Kansas.

In 1949 Dr. Wescoe was granted a Markle scholarship for research in medical science. Also listed among his honors is the fact that he has served as assistant editor of the Journal of Pharmacology and Experimental Therapeutics since 1948. He is a diplomate of the National Board of Medical Examiners and is a member of numerous honorary societies.

Mrs. Wescoe, the former Barbara Lucile Benton of Kansas City, is the daughter of Judge M. Benton of the Wyandotte County District Court.

The personal qualifications of the new dean, being intangible, are less easily expressed than his medical background and accomplishments, but they are no less favorable. He is a personable young man who comes to the new position with enthusiasm and a desire to achieve. Under his guidance the University of Kansas School of Medicine will undoubtedly continue to progress and to occupy a position of eminence among medical educational institutions.

The Journal joins the Kansas Medical Society in wishing Dr. Wescoe unmeasured success in his new undertaking and looks forward to a continuation of the pleasant relationship that has existed in the past.

The Doctor in Politics

Why should any doctor enter politics? How can he spare the time? At first glance you brush off the subject as fantastic. Medicine is an exacting wife who forbids even a fleeting glance toward the tolerant political siren. Lacking constancy this marriage is nothing.

But there is another view. Democracy was not a divine gift miraculously dropped into the center of the North American continent. It was fought for and bled for and died for by practical idealists. It was molded and nurtured and protected by honorable men to whom freedom was of even greater value than life itself or anything life offered. Among these were doctors—doctors whose honorable marriage to the science of medicine was unquestioned. They left not in pursuit of adventure but in the deadly earnest endeavor to preserve the integrity of their heritage.

They were doctors who cared for the sick, but before that they were citizens who accepted a larger personal responsibility toward the people they served—that of giving them through the offices of government, the advantage of their knowledge, their integrity, their idealism and their example.

And why not? What is improper about the concept that government is the place for our most enlightened citizens and our most honorable? Is there any valid support of the pitiful popular notion that any person is so preoccupied that he cannot serve his state or nation in public office? Where is the sense of the theory that government offices become the heritage of the misfits and the unsuccessful in private enterprise? Indifference toward our most terrible responsibility is the cause of this situation and unless successful doctors, together with outstanding citizens in all other walks of life, rise to demand integrity in government, unless they step forward to bring integrity into government, we may never find it again.

This is not critical any more than you criticize the sun for shining during the day when there is enough light already rather than at night when it is needed. It is rather a tribute to those physicians for the personal sacrifices they have made to give us the state and the nation we have today. With more light it would be brighter longer, but of course that merely requires more light.

A brief survey will reveal that many physicians are serving their government today. The value of their efforts cannot be appraised in words, and their gift to all people raises the stature of their work infinitely beyond the confines of partisan or special interests.

History reveals that medicine has contributed to the progress of this nation in a very large political way, and in Kansas this is especially true. Do you know, for example, that the first governor of the state of Kansas and at the same time the first lieutenant governor also were both doctors of medicine?

Charles Robinson, M.D., of Lawrence on February 10, 1859, served as one of the incorporators of the Kansas Medical Society who successfully requested the territorial legislature for a charter. They pleaded so well that the venerable statesmen of that day not only created the Kansas Medical Society but gave to this corporation "perpetual succession forever." When Kansas became a state two years later, Dr. Robinson was elected governor, its first and until now the only physician ever to have served in this position. His term ran from February 9, 1861, until January 1863.

During this same period the lieutenant governor was Joseph Pomeroy Root, M.D., of Wyandotte. He also was one of the incorporators of the Kansas Medical Society and served as its second president. His six years is the longest president's term in the history of this Society, from 1860 to 1866, which dates include and surround the term of his political office.

Two other Kansas physicians have been lieutenant governor of the state, Dr. Charles S. Huffman of Columbus, 1919-1923, and Dr. Jacob W. Graybill of Newton, 1929-1933. It will be recalled by many that Dr. Huffman was also president of the Kansas Medical Society during the first World War, 1917-1918.

Doctors are still working in our state government, but the expanded services of more are needed. Nor is this to be interpreted as a plea for the protection of whatever might be called specialized interests. If you include under specialized interests the protection of the health of all people, their public health services and their private medical care, the reduction of maternal mortality, expanding their life expectancy, preventing disease, improving nutrition, building hospitals, then yes, these doctors are protecting specialized interests.

But they are doing more. They are giving their full measure of support toward keeping us apart from oppression, safe from invasion, at liberty against those who threaten to strangle our freedom of speech and worship. When we weigh their achievements with ours on that inexorable scale of life, who among us will be found wanting and why?

Political Skirmish

President Truman's characteristic comment on how the A.M.A. can cause many in the Congress to "turn over and play dead" was widely published in the press. The furor was caused by another attempt on the part of the administration to impose socialized medicine upon the public. So much comment has followed this hectic and dramatic incident that the A.M.A. issued a formal statement concerning its participation in the event.

House Resolution 7800 was introduced on May 12, 1952, and referred to the Committee on Ways and Means. Printed copies of the bill were available on May 14, and on May 16, without having held any public hearings, the committee reported the bill out favorably. On May 19, just one week from its introduction, it was voted on by the House.

Nor is that all. It was brought up under unusual circumstances. Rules were suspended and debate was limited to 40 minutes. Amendments were prohibited, and the only vote available concerned its passage as it appeared. Such action requires a two-thirds majority, and the final count was 149 for and 140 against the bill. It is not yet killed and may come up again before the close of the session.

H.R. 7800 provides amendments to Title 2 of the Social Security Act. In general it increases survivors' benefits by 12½ per cent. This actually is the major intent of the bill and is something which the A.M.A. certainly did not object to and could have no logical reason for worrying about in the first place. The A.M.A. was concerned only with Section 3, which is actually a very different subject. Section 3 declares that the Federal Security Administrator shall determine what constitutes total and permanent disability and is authorized to give examinations at fees he will establish and from physicians he will select for all persons in this category. This bill did not establish the total and permanent disability benefits, but it most certainly would establish a precedent and framework for the adoption of such benefits in the future.

The A.M.A. did not object to the entire bill, but only to Section 3 which would have put the government's foot in the door of socialized medicine. The A.M.A. informed the Congress of its position in

the belief that it was performing a public service.

Certain criticisms have implied that the A.M.A. is resorting to power politics and have further erroneously stated that the medical profession is opposed to increasing survivors' benefits. Because of these misstatements, the A.M.A. wishes it widely known that its action was honorable and in the public interest. As the smoke is cleared from this latest skirmish, many persons in the Congress are wondering why such speed was necessary in the presentation of the bill, why public hearings could not be held, and why it was presented without permitting amendments to be offered. Many who voted against this bill are favorable to its principal parts and would gladly have sponsored it. They now resent the implication that they have defeated beneficial legislation. The A.M.A. also resents the criticism that has been leveled against physicians in this regard. Many heated words have been printed, and this explanation is offered to give the medical profession in Kansas the truth about this action.

And One to Grow On

A recent issue of GP, the official publication of the American Academy of General Practice, printed a guest editorial with the above title. The author cited several examples from his experience of individuals and corporations who gave their customers something more than they paid for, something extra. One is the story of the merchant who sold him candy as a youngster. This merchant carefully counted out a penny's worth and then always added a piece with the comment that this was one to grow on.

The author then suggests a variety of possible things a physician might do without thought of remuneration but on the basis of giving an added measure of service. His illustrations are of the homely variety that might be used by a family doctor to establish a higher level of good will among his patients. The editorial seemed of value because it is exactly in these homely services that the family most appreciates its doctor.

He tells, for instance, that this technique may be employed by making a brief examination for a problem that is totally unrelated to the general complaint. The patient who comes to the physician with an upper respiratory infection will feel that he has received one to grow on if, after the consultation is concluded, the doctor takes his blood pressure just for fun. It represents the something extra that impresses the patient. He implies that he often stops a few moments during a house call to have a cup of coffee with the family, and during this period the visit is purely social. It helps immeasurably to find the doctor entering the family circle. It relieves the family tension and often results in more actual benefit than the medicine that has been prescribed.

The large family wishing examinations for all youngsters may find this cost difficult to meet. Here again an opportunity is provided to give one examination for nothing as one to grow on. It represents an illustration of the theory of throwing one in for good measure. "The physician has little to render except service and he must merchandise his service to the complete satisfaction of the purchaser, and only when the purchaser has been satisfied will the bones of contention disappear."

The efficiency expert would call this good public relations. The manufacturer of a product can in a sense purchase good will by adding a bonus to the product he sells. This is a frequently utilized sales promotion idea in which, for instance, you buy one product at its full price and get the second for one cent. The purveyor of a service may employ the same plan but, not having a commodity to distribute, may do so only by offering more in the way of service than his customer or patient feels he has paid for. In these days while the practice of medicine is being criticized, a gesture of this type could provide large dividends. Its cost need not be great, and without question the results will far exceed not only the expenditure but also the expectations.

Moreover, the medical profession has a unique opportunity to carry this idea into action. What would it be worth to the utility corporation to be given the opportunity of spending 15 minutes a year alone in an office with each of its customers? That opportunity is present for every physician who practices medicine. The difference between success and failure of the idea lies only in how effectively the individual physician utilizes these 15 minutes.

U. S. medical and pharmaceutical research, which has made its greatest strides in the conquest of bacterial infections, will be chiefly directed in the coming years to "unlocking the mysteries of endocrinology, cancer and neurological and mental disturbances," in the opinion of Dr. Theodore G. Klumpp, president of Winthrop-Stearns, Inc.

"In endocrinology we have a host of glandular disturbances and imbalances, and such unsolved disease entities as diabetes," he said. "I believe that high blood pressure and arteriosclerosis, the latter the greatest killer of them all, belong in this category.

"We have no real clue as to the nature of cancer, and it is possible that several distinct and different mechanisms will prove to be the cause. It is even more likely that many serious and unsolved mental and neurological disturbances will prove to be different in their origins and causative mechanisms."

93rd Annual Session, Kansas Medical Society

Officers for 1952-1953

Dr. Warren F. Bernstorf, Winfield, who took office as president of the Kansas Medical Society on May 1, will be assisted during the coming year by the following officers: president-elect, Dr. Lucien R. Pyle, Topeka; first vice president, Dr. Murray C. Eddy, Hays; second vice president, Dr. John M. Porter, Concordia; constitutional secretary, Dr. Dale D. Vermillion, Goodland; treasurer, Dr. John L. Lattimore, Topeka; delegate to the American Medical Association, 1953-1955, Dr. L. S. Nelson, Salina; alternate, Dr. George Gsell, Wichita. Elected last year and holding over in office are Dr. John M. Porter, Concordia, delegate to the American Medical Association, and Dr. Peter E. Hiebert, Kansas City, alternate.

* * *

Councilors for 1952-1953

The terms of office of councilors for Districts 3, 6, 10 and 12 expired this year, and those four districts selected representatives to serve on the Council for three years. A complete list of the Council membership and the date of expiration of each term follows:

1. Dr. W. L. Anderson, Atchison, 1954
2. Dr. H. P. Jones, Lawrence, 1954
3. Dr. J. G. Hughbanks, Independence, 1955
4. Dr. F. C. Taggart, Topeka, 1953
5. Dr. L. J. Beyer, Lyons, 1953
6. Dr. C. W. Miller, Wichita, 1955
7. Dr. S. A. Anderson, Clay Center, 1954
8. Dr. A. E. Rueb, Salina, 1954
9. Dr. M. J. Renner, Goodland, 1953
10. Dr. L. W. Reynolds, Hays, 1955
11. Dr. C. V. Black, Pratt, 1953
12. Dr. R. G. Klein, Dodge City, 1955

* * *

Nominating Committee

Five past presidents of the Kansas Medical Society were elected by the House of Delegates to comprise the Nominating Committee for 1952. Named to the group were the following: Dr. Haddon Peck, St. Francis, chairman; Dr. W. M. Mills, Topeka; Dr. W. P. Callahan, Wichita; Dr. H. N. Tihen, Wichita, and Dr. N. E. Melencamp, Dodge City.

* * *

Editorial Board

Dr. Orville R. Clark, Topeka, was named editor of the Journal of the Kansas Medical Society when Dr. Lucien R. Pyle, who held that position for six years, resigned. Since Dr. Pyle was taking office as president-elect of the Kansas Medical Society, he resigned also as a member of the Editorial Board, and Dr. David E. Gray, Topeka, was named to complete that unexpired term. Others on the Editorial Board who will serve with Dr. Clark and Dr. Gray are Dr. John W. Cavanaugh, Dr. Richard Greer and Dr. Dwight Lawson, all of Topeka.

* * *

Official Proceedings, First Session, House of Delegates April 29, 1952

The first session of the House of Delegates of the 93rd annual session was held at the Town House, Kansas City, on April 29, 1952, with 79 voting delegates present at the start of the meeting. Dr. Clarence H. Benage, Pittsburg, presided.

Minutes of the last meeting and reports of the councilors of the Society were approved, after which chairmen of standing committees were invited to present reports supplementing those published in the April issue of the Journal.

Dr. A. W. Fegtly, Wichita, distributed copies of the newly-printed Constitution and By-Laws for the Committee on Constitution and Rules.

For the Committee on Endowment, a letter from Mrs. F. R. Croson was read, thanking the Kansas Medical Society for creating the Dr. Croson Memorial Student Loan Fund in memory of her husband, the late Dr. F. R. Croson, Clay Center.

Dr. Clyde W. Miller, Wichita, outlined the public opinion poll being conducted by the Committee on Public Health and Education, and the House directed that a request for continuation of the work be incorporated in the supplementary report.

The Committee on Medical Economics, represented by Dr. B. A. Nelson, Manhattan, reported approval of a group health and accident policy sold by the Washington National Insurance Company.

A standing tribute to the members of the Society who died during the past year followed the presentation of the report of the Committee on Necrology by Dr. J. D. Colt, Sr., Manhattan.

Dr. H. H. Jones, Sr., Winfield, reported on a meeting of the Committee on Medical Schools.

All supplementary reports were approved.

Reports of special committees were then presented as follows: Dr. J. L. Lattimore, Topeka, for the Committee on Nursing Education; Dr. Lucien R. Pyle, Topeka, for the Kansas Volunteer Advisory Committee (printed in full in this issue); Dr. Henry N. Tihen, Wichita, and Dr. Benage for the Advisory Council; Dr. Benage for the Defense Board. All reports were approved, and a resolution proposing a study of the nursing education problem was introduced.

Activities of the Editorial Board were reported by Dr. Pyle, after which Mr. Oliver E. Ebel, executive secretary, presented his resume of the year's work.

The constitutional secretary, Dr. Dale D. Vermillion, Goodland, reported on membership in the Society as follows: paid membership, 1,357; delinquent, 229; honorary, 117; on leave of absence, 31; service, 34. The total, 1,768, shows an increase of 61 over the previous year.

Dr. Lattimore read the treasurer's report. Dr. L. S. Nelson, Salina, speaking for himself and Dr. John M. Porter, Concordia, gave the report of delegates to the American Medical Association.

The address of the president was given by Dr. Benage, as printed elsewhere in this issue. Dr. Warren F. Bernstorf, Winfield, president-elect, outlined plans for the coming year.

Approval was given the reports of all officers.

Two resolutions were presented, the first by Dr. Bruce P. Meeker, Wichita, regarding the value of a basic science law for the protection of the people of Kansas. The second, introduced by Dr. Clifford J. Mullen, Kansas City, requested an examination of the University of Kansas Medical Center.

Dr. Cyril V. Black, Pratt, spoke briefly on the value of good will between physicians and representatives of pharmaceutical and surgical supply houses.

The president requested that meetings be held by delegates from the four districts scheduled to elect councilors in 1952.

There being no further business, the meeting adjourned.

* * *

Official Proceedings, Second Session, House of Delegates May 1, 1952

Eighty-five voting delegates were present at the beginning of the second session of the House of Delegates of the 93rd annual session. Dr. Benage presided at the meeting, held at the Town House, Kansas City, on May 1, 1952.

A resolution on nursing education was approved. It recommended that a license committee be appointed by the American Medical Association to confer with similar committees appointed by national nursing organizations, the league of nursing education, and the American Hospital Association to study nursing education and nursing shortages and to find an equitable solution to present nursing problems. It recommended further that state medical societies study the problem with reference to their own locale, and that the Kansas Medical Society unite with other states in this geographical area for this project.

Among other resolutions the House rejected one providing for a study of the University of Kansas Medical Center, but approved a motion that the Committee on Medical Schools visit the school and report its findings to the Council and, if necessary, to the House of Delegates at its next meeting.

Next on the agenda was the election of officers, reported elsewhere in this issue.

It was announced that the next session will be held in Wichita, May 3-7, 1953, on the 50th anniversary of the host group, the Sedgwick County Medical Society.

A motion thanking the Wyandotte County Medical Society, hosts for the 1952 session, was unanimously approved.

The meeting closed with the installation of the new president, Dr. Bernstorf.

* * *

President's Address

At our last session I was installed as your president and my address to the House of Delegates set forth a program. This program was composed of 15 projections. Tonight, the sunset of my tenure of office, I approach you with all the humility I possess and very humbly submit a report for your evaluation.

I said one year ago that certain circumstances were dictating to us and we were obliged to be dictated to—until we could restore a normal and harmonic progression. I said there was a different type of thinking today which was specifically affecting our social structure, causing exaggeration of paternalism and diminution of pride, determination, and the stern qualities of our forebearers. Along with their paternalistic tendencies a new philosophy has been woven into the fabric of our Society, the destiny of which, as it in part affects us, seems to hinge upon our health service status. But let us not forget that all national preferences cannot be maintained in the absence of sales advice, be it autos, TV or health! I said, "Medicine and its allies" (I meant normal allies) "must adjust any differences that are present; then each one must contribute to the health of society, and if and when each group makes its respective contribution we can then assume we are united in cause and effect. To this end, I pledge this body, all effort shall be made."

These remarks were prefaced by a 15-point endeavor. The points were:

1. To assist in the establishment of a strong yet flexible civil defense program. Whenever we were asked we responded, and we have assisted in the attempt to unite with Missouri and establish medical school training centers. There have been obstacles which were beyond our control, yet I do feel that

the machinery is now available, so if needed implementation could be immediate.

2. I probed to examine the medical records of indigent care. To this end we have worked hard and long, with the cooperation of the Kansas Pharmaceutical Association and the Kansas Hospital Association. They have given wholeheartedly, unselfishly and without bias or prejudice. The Kansas Pharmaceutical Association, the Kansas Hospital Association and the Kansas Medical Society then joined with the Social Welfare Board and a representative of the Research Division of the Legislative Council to make a state-wide survey of medical costs to the indigent and to adjust inequities through the findings of the report. This survey presently is in progress. I should like to add that some 15 of the larger counties have been examined in some detail, but at present we concluded such detail wasn't necessary for our purposes and have now simplified the examination. We have reason to believe the balance of the entire state examination will be completed in 60 days. This examination will enable the interested professions and parties to have the year's health cost, from which formal and specific negotiations can be instituted.

3. I proposed to assist all official and voluntary health agencies; I feel this was done without hesitation. I am certain our efforts were felt and appreciated.

4. I proposed to support the rural health program. This program has continued from former years, and the committee has been active. We continue to slowly but surely close the rural gaps by aid of our medical school, our committee and all others concerned. We opposed, and so voted against, subsidy for those doctors who go to rural areas. This question was asked through the American Medical Association. The A.M.A. appreciates this need and is willing to assist all states. Dr. Hashinger informs me he has two men going to rural areas this summer, which narrows the gap by two.

5. We have in every way and at all times supported the Blue Cross and Blue Shield. We have assisted in securing personnel and have, through our Interprofessional Advisory Council, enlisted closer study and cooperation for our voluntary prepayment plans. We have always been eager to promote these two institutions.

6. In seeking closer relations between our central office and component societies we have tried reports, have encouraged councilors to be more active in this respect and have discussed the problems at some length, without a solution at the moment, but we feel the problem will be solved. We're conscious of the fact that a better Society could be had if we could devise a means of quick transmittal to all members all actions taken by the Society.

7. Regarding Society funds, I want to advise a composite report of income and disbursements was made and sent to each county for your information.

8. I proposed to all committees that they be ever mindful of legislation. I am proud to advise we have taken steps designed to improve this relationship.

We have developed an Advisory Committee which is already at work on legislative operations for the 1953 session, and I feel this procedure might be much better for our Society because we will have a definitive program and less need for the usual lobbying. Yes, all this is within reach *if* each and every member will accept his and her responsibility and actually discharge it! Whether or not we want to, we have to, if we want to survive these vicious days of power bargaining, enter the field of politics and be willing to play for the blue chips and to play for solid keeps!

This, as you know, requires money, men and organization! I can predict tonight that anything short of this projection means further defeat. We have this past year labored and produced the machinery to win. Now, tomorrow, and the next few months you have the privilege of determining whether you want to win or lose by just exactly how much you contribute, morally, physically and financially! Gentlemen, you will agree, I am sure, that we are embarrassed to admit that $3,000,000 was raised by osteopaths to keep six schools in the race for existence while we of the A.M.A. were raising $140,000 for 76 schools. Now, isn't that sheer shame?

9. and 10. I pledged the medical assistants I would try to avoid the frequent conflict of their meeting with Mother's Day. I pledged support to the Auxiliary. Both have been exercised.

11. I felt we should support our parent organization. I am proud to say after talking with A.M.A. officials that the Kansas Medical Society is held in high regard and there is no friction. Thus I feel our obligation is certainly justified. Compare your dues with union labor dues, and if then you begrudge such fees—well, God help you.

12. I pledged that new ideas would be given consideration. This has been accomplished, and by way of example—the Interprofessional Advisory Council, the Advisory Committee, our public relations program, our legislative program and the indigent care survey have resulted.

13. This concerns a breakdown of medical costs. When this subject is discussed by laymen the inference is that the doctor is the cause of high costs. This study was very effective and through the cooperation of the Kansas Hospital Association, the

Kansas Pharmaceutical Association and the Kansas Medical Society with Blue Cross and Blue Shield, it has been disclosed that hospitals receive approximately 50 per cent, drugs require 20 per cent, and doctors receive 30 per cent of the total cost of health care. In 1950 the national average was 34 per cent for hospitals, 35 per cent for doctors, 14 per cent for dentists and 17 per cent for drugs.

14. I pledged you effort would be made to improve relations as well as fees between our Society and the State Athletic Association. I am glad to report this also has been done, and there is an insurance program now in effect, fees based on and patterned after Workmen's Compensation, and also free choice of doctor. If you have any questions, you may direct your inquiries to our central office.

15. This point concerns support for a tuberculosis sanitarium in southeast Kansas. This support was given, and brochures were prepared by different communities. The needs were substantiated by case finding facts, and I appeared before the Legislative Council and submitted data for the council to study. The approach to the subject has been kept on a high plane, and fairness to all concerned communities has been most carefully exercised. So, during the past year, I can report to you that each and every projection has been explored. We have either accomplished, set in motion or disposed of each and every phase of the program.

The net evaluation becomes your privilege!

In passing I should like to leave with you my experience, though not original—not new but often neglected! The first thought is—those charged with guiding the destiny of our Society are daily confronted with the ever increasing complexities of life and all the interests therein provided. Thus, in the approach to and considerations of Society problems we must always be conscious of a legion of separate and heterogeneous interests which will, if unrecognized, let us overlook the human element, and the human element is always a vital part whether we're dealing with patients, dealing with the public, dealing with our allies or discharging our obligations to society.

The second thought I would like passed on is the absolute necessity for us, as doctors and citizens, to enter the field of politics if we are to preserve our freedom, our professional standards and our personal dignity.

Our inherent tendency is scientific imagination, which of course is a splendid faculty, but, let us coordinate it, regulate it and guide its production!

I want to advise you that I have observed your directive of one year ago in severing any and all relations with the osteopaths. I have observed your instructions in every way!

In conclusion, I want to say again, the honor of having served as your president during the past year was a privilege indeed singular, and as such the concluding year shall occupy a singular status in my memory. My only hope is that my actions and my behavior will warrant Time to record we at least moved forward!

Now, as I move to occupy the presently vacant chair of immediate past president, let me extend to each of you and yours wishes for a successful and healthy year that lies just ahead. Thank you.

C. H. Benage, M.D., *President*

* * *

Editorial Board

Your Editorial Board, composed of Lucien R. Pyle as editor and John W. Cavanaugh, Orville R. Clark, Richard Greer and Dwight Lawson as members, submits to you the following report.

The Journal of the Kansas Medical Society was published the past year with a total publishing cost of $18,498.75. Of this sum $16,895.18 was obtained through the sale of advertising space on the pages of the Journal and through a small number of subscriptions from physicians or persons who are not members of our Society. It is therefore our duty as members of the Kansas Medical Society to be cognizant of the fine support of those ethical companies who advertise their products through the medium of our Journal and to patronize them whenever possible.

As of 1953, if we wish to retain our second class mailing privilege, it will become necessary for us to change some of our operating procedures. The only change that will materially affect our members is that postal regulations require that not less than half of the published subscription rate ($4.00) be directed to and receipted by the Journal of the Kansas Medical Society. This will be reflected by a notation on your receipt for your annual dues as issued by the Society next year. It will not, however, make a change in the dues or in the cost to the Kansas Medical Society because it will be paid back to the Society by check for rental of office space and payment for other services rendered to the Journal by the staff in the state office.

Honorary members, however, will be required to pay a subscription rate of $2.00 per year if they receive the Journal.

It is the desire of your Editorial Board to improve the scientific content of the Journal, issue by issue and volume by volume. There is an abundance of clinical material and an abundance of medical talent in the state of Kansas. There seems to be a dearth of medical talent when it comes to preparing this material for publication. Good medical writing requires much time and research, both through clinical records and the literature. This material must

then be carefully presented and evaluations and conclusions drawn. It must be carefully edited from the brevity of the opening paragraph to the terseness and severe correctness of the summary and conclusions. Such efforts are rewarded by presenting a good paper for publication. We are ever in search of such medical papers. You and those that you represent are our only source of such material.

It is in this report each year that the Editorial Board has the privilege of publicly expressing to the Society its appreciation for the loyal and efficient service rendered to us and to the Kansas Medical Society by our managing editor, Miss Pauline Farrell, and our business manager, Mr. Oliver Ebel.

As editor of the Journal, I wish to express my personal gratitude to each member of the Editorial Board whose time and counsel have been invaluable in our efforts to raise the standards of the Journal of the Kansas Medical Society.

Lucien R. Pyle, M.D., *Editor*

* * *

Kansas Volunteer Advisory Committee

Although the Kansas Volunteer Advisory Committee to Selective Service is not an official committee of the Kansas Medical Society, its activities are of interest to every component society, more particularly so since all of the opinions as to availability or essentiality are passed to the local advisory committee, one for each county medical society.

I wish to emphasize that this committee has nothing to do with what physician is called to the service. The order of call is determined by law and according to categories. The youngest man in each category is called first. According to law, every available man in Priority I, taking the nation as a whole, will be called before the first man in Priority II is called. The only exception to this is the delay in call for those men who have been declared essential. Therefore, the only duty of the Volunteer Advisory Committee, acting upon the advice of the local advisory committees, is to maintain in those areas where there is need sufficient doctors to take care of that need until such time as they may be replaced by another physician.

I am sorry that I am unable to tell you how many doctors have entered the service from the state of Kansas. This is a bit of information that we have not been able to obtain either through the armed services or the headquarters of Selective Service.

However, according to information received from the national advisory committee, all of the physicians in Priority I are now in service with the exception of about 1,000 who have not voluntarily made application for a commission. It would appear that there will soon be another draft of physicians. The Army is calling up 232 physicians in July, and it is expected that a similar or larger number will be called in September due to the release of quite a large number of physicians who were involuntarily recalled to duty in 1950.

According to law, the $100 per month additional pay for physicians ends in September, 1952. There is considerable debate about this pay at the present time, and there is a possibility that the law will not be extended.

I wish to urge that all correspondence from the office of the Kansas Volunteer Advisory Committee to the local advisory committees be answered promptly. This is particularly necessary if it concerns a physician that the local advisory committee considers essential.

Remember that this committee is attempting to make its recommendations for the best interests of medical service to our communities. We are not basing and cannot base our recommendations on personal requests of physicians except in instances of extreme hardship, and then only for such period of time as that hardship continues.

Lucien R. Pyle, M.D., *Chairman*

* * *

Blue Shield Elects

Dr. Henry S. Blake, Topeka, was elected president of Kansas Blue Shield at a meeting held in Kansas City on April 27. The following officers will serve with Dr. Blake: Dr. Lloyd Reynolds, Hays, vice president; Dr. G. G. Whitley, Douglass, executive vice president; Dr. John A. Holmes, Lawrence, secretary-treasurer.

Trustees newly elected to the board of directors are Dr. P. E. Hiebert, Kansas City; Dr. F. A. Moorhead, Neodesha; Dr. R. P. Watterson, McPherson, and Dr. M. F. Frederick, Hugoton.

One of the principal items for discussion at the meeting was the procedure for election of trustees to the Blue Shield Board of Directors. In the past, each member from a councilor district was elected by the members of the Blue Shield board from nominations presented by the secretary of each county medical society in that councilor district. It was decided that in the future each county medical society will present a name to the chairman of the district Blue Shield Relations Committee, and that committee will recommend its nomination to the members of the Blue Shield Board. It is thought the revised procedure will provide better representation of the doctors in each district and give opportunity for greater participation on the part of the district committees.

* * *

Obstetrical Society Organized

A meeting of all physicians interested in obstetrics was held in Kansas City on April 29, after arrangements for the session had been made by Dr. David

E. Gray, Topeka, and Dr. Hubert M. Floersch, Kansas City. It was decided that a society for the dissemination of obstetrical knowledge would fill a need, so organizational plans were outlined.

Since the name of the former Kansas Obstetrical and Gynecological Society implied that membership was limited to those practicing this specialty, the group decided to call the new organization the Kansas State Obstetrical Society, with membership open to all physicians in the state who are interested in obstetrics. The first regular meeting of the society will be held in November at the time of the refresher course in obstetrics at the University of Kansas Medical Center. All physicians in the state will be invited by letter to become members.

Dr. Robert G. Heasty, Manhattan, was named president of the new organization, and Dr. Robert H. Maxwell, Wichita, was elected secretary.

* * *

Radiological Society Meets

A business meeting of the Kansas Radiological Society was held in Kansas City on Tuesday, April 29. Officers chosen at a meeting held in February were in charge. Dr. Charles M. White, Wichita, is the new president of the group, Dr. William R. Allen, Kansas City, is vice president, and Dr. Willis L. Beller, Topeka, is secretary-treasurer.

* * *

Pathologists Meet

Members of the Kansas Society of Pathologists held their annual meeting in Kansas City on April 29. The following officers were elected: president, Dr. James O. Boley, University of Kansas Medical Center; vice president, Dr. Ann Pollak, University of Kansas Medical Center; secretary, Dr. Ward W. Summerville, Bethany Hospital, Kansas City.

The group decided to arrange a regional meeting of the College of American Pathologists, tentatively set for March, 1953, at the University of Kansas Medical Center, under the joint sponsorship of the Kansas Society of Pathologists and the Missouri Society of Pathologists. It was planned to invite Dr. Paul Kimmelstiel of Charlotte, North Carolina, as principal speaker.

* * *

Meeting of General Practitioners

Members of the Kansas Academy of General Practice held an all-day scientific, business and social meeting at the Town House, Kansas City, on April 28. Guest speakers presented the scientific portion of the program and Dr. George Thorpe, Wichita, presided at the business session. A banquet, program and dance concluded the day's events.

Dr. A. C. Harms, Kansas City, took office as president at the close of the session. Dr. George E. Burket, Jr., Kingman, was named president-elect; Dr. Lawrence E. Leigh, Overland Park, vice president; Dr. Gerhart R. Tonn, Wichita, secretary-treasurer.

* * *

Anesthesiologists Meet

A meeting of the Kansas Society of Anesthesiologists was held in Kansas City on April 30, and the group chose Dr. Paul H. Lorhan to serve as its president during the coming year and as its delegate to the national association of anesthesiologists. Dr. Floyd C. Taggart, Topeka, who is treasurer of the group, is alterate to the national organization. Dr. L. L. Bresette, Kansas City, was elected vice president, and Dr. Wray Enders, Kansas City, was named secretary.

Tentative plans were made for a fall meeting in 1952 and a spring meeting in 1953 at the time of the annual session of the Kansas Medical Society. It was decided that a guest speaker be invited to address the group at the spring session.

* * *

E.E.N.T. Section Elects

A business meeting of physicians engaged in E.E.N.T. practice was held in Kansas City in connection with the scientific program for those specialists. Elected to serve the organization as officers during the coming year are Dr. D. D. Vermillion, Goodland, president; Dr. George F. Gsell, Wichita, vice president, and Dr. James E. Hill, Arkansas City, secretary.

* * *

Kansas Psychiatric Society Meets

At the annual meeting of the Kansas Psychiatric Society, the following officers were elected for the 1952-1953 year: president, Dr. William F. Roth, Jr., Kansas City; vice president, Dr. William Rottersman, Topeka; secretary-treasurer, Dr. John R. Adams, Topeka; councilors, Dr. Frank F. Meeker, Topeka, and Dr. John Grimshaw, Topeka.

* * *

Woman's Auxiliary Meets

The annual meeting of the Woman's Auxiliary to the Kansas Medical Society was held in Kansas City, April 28-30. Mrs. Robert E. Pfuetze, Topeka, took office as president at the close of the session. Others elected to serve with her during the coming year are: president-elect, Mrs. I. Joseph Waxse, Oswego; first vice president, Mrs. Barrett A. Nelson, Manhattan; second vice president, Mrs. Edwin M. Harms, Wichita; third vice president, Mrs. James L. Jenson, Colby; recording secretary, Mrs. E. R. Millis, Kansas City; treasurer, Mrs. Herbert T. Schmidt.

Four councilors were to be elected this year, and the following were chosen: Mrs. Francis C. Basham, Eureka; Mrs. Joseph J. Hovorka, Emporia; Mrs. R. T. Unruh, Kinsley; Mrs. John O. Austin, Garden City. Named to the Nominating Committee were Mrs. Mark A. Brawley, Frankfort; Mrs. John A.

Billingsley, Kansas City; Mrs. Louis A. Donnell, Wichita; Mrs. Tyler D. Blasdel, Parsons, and Mrs. L. S. Nelson, Sr., Salina.

* * *

Medical Assistants Elect

Mrs. Charlotte Parish, Wichita, was installed as president of the Kansas Medical Assistants' Society on April 28 at the close of the group's two-day annual meeting. The following officers were chosen to serve with her during the coming year: Mrs. Lerah Lacey, Topeka, president-elect; Miss Alice Marie Grosdidier, Kansas City, vice president; Miss Mary Ellen Babb, Wichita, secretary, and Miss Carmen McKnight, Winfield, treasurer. One councilor was elected at the meeting, Mrs. Ruth Sieverling, Wichita, who will represent the third district of the state.

* * *

Sports Events

The Kansas Medical Golfing Association and the Kansas Medical Skeet and Trapshooting Association provided entertainment for physicians in Kansas City on Monday, April 28, the day before the 93rd annual scientific session of the Kansas Medical Society. A tournament banquet for both groups was held that evening at the Milburn Country Club, and prizes were awarded the winners of the various events.

At a short business session, Dr. George D. Marshall, Colby, and Dr. Raymond J. Leiker, Great Bend, were chosen to head the sports organization during the coming year. Dr. Fred N. Bosilevac, Kansas City, was named to serve as secretary-treasurer.

Prizes for golf were awarded by flights. The following received prizes:

Championship flight: low gross, Dr. Glen Ashley, Chanute; low net, Dr. George F. Gsell, Wichita; second low gross, Dr. H. P. Jones, Lawrence; second low net, Dr. M. W. Carlson, Ellinwood.

First flight: low gross, Dr. J. W. Shaw, Wichita; low net, Dr. J. R. Weaver, Wichita; second low gross, Dr. H. Lee Barry, Wichita; second low net, Dr. J. D. Taylor, Norton.

Second flight: low gross, Dr. C. J. Mullen, Kansas City; low net, Dr. Weir Pierson, McPherson; second low gross, Dr. J. L. Wentworth, Arkansas City; second low net, Dr. Byron J. Ashley, Topeka.

Third flight: low gross, Dr. L. C. Joslin, Harper; low net, Dr. E. H. Clayton, Arkansas City; second low gross, Dr. John N. Martin, Kansas City; second low net, Dr. W. D. Pitman, Pratt.

Oldest golfers: Dr. J. A. McLaughlin, Wichita; Dr. E. A. Smiley, Junction City; Dr. C. V. Minnick, Junction City. Door prize: Dr. A. L. Ashmore, Wichita.

In the trapshooting competition, honors for high trap went to Dr. E. A. Smiley, Sr., Junction City; second high trap, Dr. J. L. Jenson, Colby; third, Dr. W. A. Smiley, Junction City; fourth, Dr. L. W. Hatton, Salina, and Dr. R. E. Cheney, Salina, tied; tyro, Dr. L. S. Roberts, Wichita.

Other prize winners were: Dr. F. L. Loveland, Topeka; Dr. C. V. Minnick, Junction City; Dr. Haddon Peck, St. Francis; Dr. R. R. Sheldon, Salina; Dr. Murray C. Eddy, Hays, and Dr. H. E. Haskins, Kingman.

Listed below are the prizes awarded and the names of the contributors: championship plaque, Quinton-Duffens Optical Company; shirt, Eli Lilly and Company; electric clock, Abbott Laboratories; whiskey, Goetze Niemer Company; golf balls, E. R. Squibb and Sons; sun glasses, American Optical Company; golf balls, Ortho Pharmaceutical Corporation; fan, A. S. Aloe Company; book ends, Mead Johnson and Company; cuff links and sun glasses, Armour Laboratories; disposal cans, Munns Medical Supply Company; sutures, Ethicon Suture Laboratories; *Current Therapy,* W. B. Saunders Company; Norma pencils, Ciba Pharmaceutical Products, Inc.; mattress, Sealy, Inc.; billfold, cuff links and sutures, Wm. P. Poythress and Company, Inc.; Skotch cooler, Burroughs Wellcome and Company, Inc.; Scotch whiskey, Ayerst, McKenna and Harrison; *Medical Emergencies,* F. A. Davis Company; gun cleaner, Baxter Laboratories, Inc.; *Merck Manual,* Merck and Company, Inc.; golf balls, Doho Chemical Corporation; deodorant and shaving lotion, Mennen Company; $10 in products, Lanteen Medical Laboratories, Inc.; Syncrobin, Schenley Laboratories, Inc.; vitamin B-12, Smith-Dorsey; bathroom scale, American Hospital Supply Corporation; soap, Ar-Ex Cosmetics, Inc.

An accurate description of public health in this country today would hardly be valid for vast areas of the world. In many parts of the world the absence of simple personal and community hygiene underlies most of the health problems, and such diseases as malaria, intestinal disorders, and tuberculosis account for a very high proportion of deaths and disability. It would be necessary to go back, therefore, as much as a century in our own history to seek a suitable content for health programs in underprivileged parts of the globe today. Health problems cannot be isolated from the environment —both physical and social—in which they exist. Such factors as the individual's job, his family life, his housing, his recreation must all be assayed for their impact on health and disease. In other words, we must now not only put emphasis on the individual and his needs, but also consider him in relation to his whole complex socioeconomic environment.—*Joseph W. Mountin, M.D., Pub. Health Reports, March, 1952.*

Case Reports From The University of Kansas Medical Center Tumor Conference*

TUMORS OF THE PAROTID REGION

Edited by R. E. Stowell, M.D., and D. M. Gibson, M.D.**

Case No. 51-111

T. F., a 29-year-old white woman, entered the hospital with a history of a tumor in the region of the parotid gland of five years' duration. The tumor was removed approximately six months before admission to this hospital and diagnosed as a mixed tumor. Because of recurrent nodularity in the same region, the patient was referred to this hospital. Findings revealed a small nodule approximately two cm. in diameter just below the left ear, which was firm, slightly movable and non-fluctuant. There was a linear scar about six cm. long over the apex of this tumor running in approximately the direction of the mandible. A partial removal of the parotid gland was accomplished.

Dr. Boley: Histologically, this is a fairly well encapsulated tumor mass that is composed predominantly of light basophilic staining stroma, with occasional epithelial nests that are frequently in acinar formation (Figure 1). The myxomatous stroma has foci which resemble embryonal cartilage, and osteoid formation is occasionally suggested. Because of the epithelial elements and the mesodermal appearance of the stroma, these tumors have been called "mixed tumors." The prevalent opinion now is that the tumor is of epithelial origin and the ground substance is material secreted by the epithelial cells.

These tumors may give rise to carcinomas; it is not uncommon to find a benign mixed tumor with an invasive carcinoma superimposed. Many of these tumors are not as well encapsulated as this one was. They may be of multicentric origin, which may partially explain the high rate of recurrence. Repeated recurrence, therefore, does not necessarily imply malignancy.

Dr. Robinson: Some recurrences may be explained on the basis of multicentric origins, but many are attributable to the fact that the surgeon, in his zeal to avoid the facial nerve, does not completely remove the tumor.

The most common tumor of the parotid gland is the mixed tumor. It is not difficult to make a positive diagnosis unless the location is in the retromandibular area. These tumors are firm and are usually well defined; they are round and may be somewhat lobulated; they are slightly movable and are usually non-tender; the most common location is in the angle of the jaw. If the tumor is fixed, or is quite tender, or cannot be well defined, then one must think of other possibilities, although these factors do not rule out mixed tumors.

The anatomy of this region is of great importance to the surgeon because the facial nerve lies so close to the origin of these tumors that it is not infrequently damaged during the resection. The tumor should preferably be removed without biopsy through a large incision and a large subcutaneous flap. By simply enucleating the tumor mass from the capsule there are the fewest number of facial nerves injured, but there are also the greatest number of recurrences. We feel that the tumor should be completely removed, with the capsule and a small rim of surrounding uninvolved salivary tissue. Unfortunately the tumor often displaces some of the branches of the facial nerve around the margin of the mass, so that it is difficult to get all the tumor out and leave the twigs intact. One can sum up the treatment by saying that it is surgical; it should be total the first time; and, if one leaves a rim of nor-

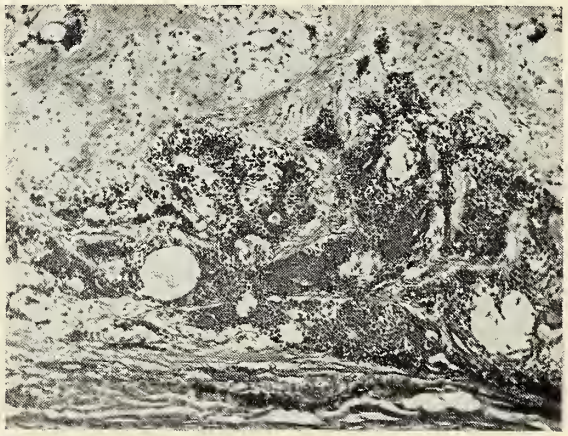


Figure 1. Photomicrograph of mixed tumor of parotid (case 51-111) showing epithelial and mesenchymal components. Hematoxylin and eosin stain. X 80 magnification.

*Cancer teaching activities aided by a grant from the National Cancer Institute and the Kansas Division of the American Cancer Society.

**Postdoctoral Clinical Research Fellow of the Damon Runyon Memorial Fund for Cancer Research.

mal parotid tissue around the outside of the capsule, he will not get recurrence unless the tumor is of multicentric origin.

Dr. Stowell: Dr. Robinson, what about the rate of growth of this type of tumor, and does it appear to change following treatment or partial removal?

Dr. Robinson: There is a tendency for the tumor to grow more rapidly when it has been molested. When it recurs, the histological type of each recurrence tends to be more malignant. Therefore, one should make every effort to get it out entirely the first time. The unoperated tumors are usually slow in their development. Sometimes a patient will have a painless lump which may stay the same size for 5 or 10 years before it begins to enlarge.

Dr. Stowell: Dr. Tice, does radiotherapy play a role in this type of tumor?

Dr. Tice: These tumors are not radiosensitive, so x-ray therapy is not the primary treatment for them. Some routinely give postoperative radiation therapy because of the tendency for recurrence. I think perhaps this may slow them down a bit by the fibrosis which develops.

Case No. 51-112

S. M., a 60-year-old white man, entered the University of Kansas Medical Center in February, 1951, because he had noted a small slowly growing tumor on the right side of the face overlying the angle of the right mandible. There was no pain, tenderness, or drainage from this area. Physical examination showed a small egg-sized tumor mass, freely movable, under the skin overlying the ramus of the right mandible. On February 13 this mass was removed. The patient was again admitted to the hospital in June, 1951, because of congestive cardiac failure. An asymptomatic two by three cm. firm mass in the retromandibular area was noted at this time and surgical excision with local anesthesia was done.

Dr. Boley: This is a well encapsulated tumor. It is composed of irregular papillary processes and has abundant lymphoid elements, with occasional germinal centers. The papillary processes are lined with tall acidophilic columnar epithelium. Thompson and Bryant[1] believe that these cells arise from ducts of the salivary glands and that the lymphoid elements that are so prominent in these tumors may be due to chronic inflammatory change rather than being an integral part of the tumor. The tumor is a papillary cystadenoma lymphomatosum, or Warthin's tumor. These tumors are almost universally benign.

Dr. Robinson: In 1943,[2] there were only about 67 of these tumors in the world's literature. Since then perhaps as many as 200 of these relatively rare tumors have been recorded. They are generally benign. It was our opinion[2] that these were embryonal rests of ductal tissues which grew progressively at a later stage in life. Grossly the tumor is well encapsulated and is soft, in contrast to the firm, nodular mixed tumors. They often contain opaque, turbid or granular yellow or brown fluid. These tumors are not as easy to remove as mixed tumors because they are not quite so firm and do not have a firm capsule. They will recur if not removed completely. This patient had a recurrence, or perhaps a new tumor that started from the original rest. The treatment is entirely surgical.

Case No. 51-113

M. B., a 68-year-old white woman, entered the hospital because of a slow-growing mass in the right parotid region of one year's duration. Two weeks prior to admission the mass enlarged rapidly and became firm; it was associated with lancinating pain extending anteriorly and superiorly, these symptoms being unrelated to food ingestion. Physical examination disclosed a hard smooth mass approximately 3.5 cm. in diameter just anterior to the right tragus. No cervical adenopathy was noted. A wide surgical excision of the mass was undertaken, deliberately sacrificing the branches of the facial nerve. The tumor appeared fairly well encapsulated and extended into the deeper lobes of the parotid and also into the retromandibular area. The patient exhibited a facial paresis postoperatively.

Dr. Boley: In some areas the tumor is encapsulated, while in other areas it is invading the surrounding parotid gland. The tumor is surrounded by proliferating fibrous tissue containing some lymphocytes. The nests of tumor cells are generally small, but some are large with central necrosis. This is a carcinoma of the parotid gland. There is no evidence of a pre-existing mixed tumor, so that presumably the carcinoma arose from the glandular substance of the parotid.

Dr. Robinson: The problem of treatment is more difficult in these cases. We do not feel that biopsies are indicated for masses of the parotid region if one can be reasonably sure of the diagnosis. A firm, moderately discrete mass in the parotid region, which seems to be fixed to the mandible or adjacent structures, should be considered clinically as a carcinoma. However, one cannot be sure clinically, and a radical operation is unjustified when one is dealing with an inflammatory process or a mixed tumor that just feels like a malignant tumor. Usually the patient has had prior surgery with a biposy report of carcinoma of the parotid gland.

If it is frank cancer, it is obligatory that one remove the whole area and pay no attention to the

surrounding structures. However, in a borderline type of malignancy, which we classify as mucoepidermoid carcinoma, are we justified in sacrificing the facial nerve? Our attitude has been that if the tumor is reported as a borderline malignancy, we have done a total parotidectomy with salvage of the facial nerve. A total parotidectomy is an operation that requires diligence, patience and meticulous attention to detail. It usually takes three or four hours to do a total removal of the parotid and save all of the twigs of the facial nerve. If the patient does have a frank carcinoma of the parotid gland, he not infrequently will have metastases to the cervical nodes, in which case he should have at least an upper neck dissection with removal of the glands. In more advanced malignancy he should have complete radical neck dissection with removal of the glands.

I think postoperative radiation therapy might give a little better chance. It has been said that carcinoma of the parotid gland does not metastasize below the neck; this is not so, as there have been cases of pulmonary metastases. The tumor is usually worse in younger patients.

Dr. Boley: Cylindromas and mucoepidermoid carcinomas are considered as low grade malignancies. McFarland[3] has reviewed about 400 parotid tumors. He submitted slides from various tumors to different pathologists, and found that there was a great deal of disagreement as to the possibility of recurrence of these tumors.

Dr. Robinson: One should not give preoperative radiation therapy to this type of tumor if one hopes to save the facial nerve. I have done some resections on patients who had received considerable radiation therapy and it is virtually impossible to save the facial nerve because of the fibrosis.

Bibliography

1. Thompson, A. S., and Bryant, J. C., Jr.: Histogenesis of Papillary Cystadenoma Lymphomatosum (Warthin's Tumor) of Parotid Salivary Gland. Am. J. Path. 26: 807, 1950.
2. Robinson, D. W., and Harless, M. S.: Papillary Cystadenoma Lymphomatosum of the Parotid Gland. Surg., Gynec. and Obstet. 76: 449, 1943.
3. McFarland, J.: The Mysterious Mixed Tumors of the Salivary Glands. Surg., Gynec and Obstet. 76: 23, 1943.

COUNTY SOCIETIES

Endorsement and support of Blue Cross-Blue Shield enrollment in Leavenworth County was voted by the Leavenworth County Medical Society at a meeting held May 12. Members designated their offices as information and enrollment centers for the drive held May 17 to 26.

* * *

The last meeting of the Shawnee County Medical Society for the spring season was held at the Hotel Jayhawk, Topeka, May 6. The speaker for the evening, Dr. J. B. Christensen of Omaha, discussed "The Diagnosis and Treatment of Ano-Rectal Complaints."

* * *

Dr. Andrew S. Tomb, Victoria, Texas, was speaker at a meeting of the Sedgwick County Society held at the Allis Hotel, Wichita, on May 6. His subject was "The General Practitioner Treats the Problem Drinker."

The society's Committee on Indoctrination, headed by Dr. George F. Gsell, presented a program for new members of the organization on April 8. Fifty-two of the 66 members who have been admitted since the last indoctrination meeting three years ago were present.

The following program was presented: "The Physician's Responsibility and Medical Ethics," Dr. R. H. Maxwell; "History of the Sedgwick County Medical Society," Dr. H. C. Clark; "Services of the Sedgwick County Medical Society," Mr. H. Martin Baker; "Services and Duties of the Kansas Medical Society," Mr. Oliver E. Ebel, Topeka; "Services and Duties of the A.M.A.," Dr. Laurence S. Nelson, Salina.

* * *

A joint meeting of the Wilson County Medical Society and Auxiliary was held at the Blue Tea Room, Neodesha, on May 14.

* * *

Members of the Geary County Medical Society were guests of the druggists of Junction City at a dinner meeting at the Bartell Hotel on May 22. The program included a discussion of the new federal law pertaining to prescriptions.

DEATH NOTICES

WILLIAM R. KENOYER, M.D.

Dr. W. R. Kenoyer, 54, an active member of the Ford County Medical Society, suffered a fatal heart attack while attending a patient on April 16. He had practiced in Hugoton since 1932 except for three years in the Army during World War II, when he served in Africa, Italy and Germany. He was active in medical affairs in his community and was serving as coroner of Stevens County at the time of his death. A memorial fund, to purchase equipment for the Stevens County Hospital, is being collected in his honor. Dr. Kenoyer received his medical education at the University of Kansas School of Medicine, from which he was graduated in 1931.

ACTIVITIES OF MEMBERS

Dr. James G. Lee, Bonner Springs, who has been practicing for 60 years, announced his retirement on May 1. He has practiced in De Soto, Eudora and Bonner Springs, and estimates that he has delivered 3,000 babies during his 60 years in medicine.

* * *

Dr. J. J. Hovorka, Emporia, spoke on cancer at the May meeting of the Fourth District Nurses Association.

* * *

Dr. Wallace Lane, El Dorado, was elected vice president of the Kansas Public Health Association at a meeting held in Kansas City last month.

* * *

Dr. and Mrs. A. C. Gulick, Goodland, who observed their 50th wedding anniversary last month, were guests of honor at a surprise party given by the Goodland Rotary Club.

* * *

More than 800 persons were present in Kingman recently on "Dr. Haskins' Day" when the community honored Dr. Harry E. Haskins on his 50th anniversary in the practice of medicine.

* * *

Dr. William C. Menninger, Topeka, was elected a governor of the American College of Physicians at a meeting held in Cincinnati in April. Dr. Harold H. Jones, Winfield, was elected to the board of regents.

* * *

Dr. J. G. Hughbanks was elected head of the nwely organized City Shrine Club in Independence.

* * *

Dr. Rodger Moon, who has been practicing in Emporia since 1946, has begun a three-year residency in child psychiatry at the University of Kansas Medical Center.

* * *

Dr. Frank Lenski, Jr., who has been associated with his father in practice in Iola, has been called to active duty in the National Naval Medical Center, Bethesda, Maryland.

* * *

Dr. Harry E. Haskins, Kingman, and Dr. M. C. Ruble, Parsons, were recently reappointed to the Kansas State Board of Medical Registration and Examination for four-year terms.

* * *

Dr. D. Cramer Reed, Dr. Robert Norris, Dr. W. C. Goodpasture and Dr. R. A. Nelson, all of Wichita, were speakers at a recent meeting of the Kansas Society of Medical Technologists. The meeting was held in Wichita.

A basket dinner was a feature of a week-long celebration in Strong City last month in honor of Dr. Jacob Hinden, who has completed 50 years of practice in the community.

* * *

Dr. R. H. Edmiston, a physician in Lawrence for the past 33 years, retired last month and was a guest of honor at a dinner given by the Douglas County Medical Society. Dr. Edmiston is now visiting in Virginia.

* * *

Dr. C. M. Miller, Oakley, was presented a 50-year membership emblem at a district Masonic meeting held in Oakley in April.

* * *

Dr. D. B. McKee spoke on socialized medicine before the Rotary Club in Pittsburg on May 13.

* * *

Dr. W. E. Currie, who has practiced in Sterling for 51 years, has retired because of illness. He has attended six generations of one family in the community.

* * *

Dr. Vernon M. Winkle has resigned as health director for Kansas City and Wyandotte County to become director of local services for the Kansas State Board of Health. His successor in the city-county position in Kansas City will be Dr. H. W. Lane, who is now health director for Butler and Greenwood counties.

* * *

Dr. E. Russell Jacka, a member of the psychiatric department of the Hertzler Clinic, Halstead, for the past four years, has resigned that position to enter private practice in psychiatry in Wichita.

* * *

Dr. J. P. Berger, Wichita, spoke over radio station KFH on April 14. He discussed cancer from the lay standpoint and told of facilities available in Wichita for treatment of cancer.

* * *

Dr. Philip W. Morgan, Emporia, president of the Kansas Heart Association, has announced the appointment of Dr. Harold Jones, Winfield, as chairman of the association's program committee, Dr. E. Grey Dimond, Kansas City, as chairman of the clinic committee, and Dr. D. R. Davis, Emporia, as head of the rheumatic fever committee.

* * *

Dr. Jack W. Graves, Wichita, recently became a diplomate of the American Board of Surgery.

* * *

Dr. Victor E. Chesky, Halstead, spoke on "Chronic Thyroiditis" at a meeting of the International College of Surgeons held in Kansas City late in April. Dr. Ferdinand C. Helwig, Kansas City, spoke on

"Surgical Jaundice" and participated in a panel discussion.

* * *

Dr. Ralph H. Major, professor of medicine and the history of medicine at the University of Kansas Medical Center, was awarded a doctor of letters degree from the University of Cincinnati at exercises held May 27.

* * *

Dr. Henry H. Loewen, Wichita, went to Chicago early in May for a postgraduate course at the Cook County Graduate School of Medicine.

* * *

Dr. Ivan R. Burket, Ashland, who received his degree from the University of Kansas School of Medicine in 1910, was chosen as one of five alumni to receive the K. U. Alumni Association's award for distinguished service. The citations were presented on June 1.

* * *

Dr. Donald H. Macrae, Topeka, has announced plans to seek reelection as coroner of Shawnee County.

* * *

Dr. A. C. Eitzen, Hillsboro, has announced that Dr. Peter D. Enns, formerly of Kansas City, is now associated with him in practice.

* * *

Dr. J. F. Casey has resigned as manager of Winter V.A. Hospital, Topeka, to become chief of the hospital psychiatric section of the V.A. central office in Washington. Dr. R. C. Anderson, who has been in the professional services division at Winter Hospital for the past three and a half years, will replace Dr. Casey as manager.

* * *

Dr. Norman L. Claybourn, who formerly practiced in Fort Scott, has accepted a position as medical director for the Procter and Gamble Soap Company in Amarillo, Texas.

* * *

Dr. H. O. Marsh, Wichita, was speaker at the May meeting of the Sedgwick County Medical Assistants' Society. His subject was "The Everyday Miracle."

* * *

Dr. L. Claire Hays, Cedar Vale, announces that Dr. Dale Clark of Kansas City will be associated with him in practice in Cedar Vale and Sedan after July 1.

* * *

Dr. R. S. Roberts represented the Franklin County Medical Society at a conference held in Ottawa last month to discuss precautions to be taken in milk handling because of an outbreak of anthrax in cattle.

* * *

Dr. Allen J. Enelow has resigned as head of the out-patient department at Topeka State Hospital to enter private practice in Los Angeles. Dr. Howard V. Williams, staff psychiatrist at the institution since 1949, will replace Dr. Enelow.

* * *

Dr. L. J. Ruzicka, Concordia, was speaker at a meeting of the Rotary Club in that city last month. He told of the history and practice of anesthesiology.

Matching Plan for Internships

A national matching plan has been used for the first time this year to place new interns in hospital appointments, according to a recent report from the Association of American Medical Colleges. The project was designed to lessen the confusion which has resulted in the past when hospitals were seeking 10,000 interns from a graduating class of 6,000.

The plan, sponsored by the National Interassociation Committee on Internships, provides for hospitals and students to contact each other freely during the student's senior year. Both file confidential ratings with the committee, and the two are then matched, with the student receiving the internship he prefers most if this agrees with the hospital's rating of him.

Success of the plan is indicated by the fact that 84 per cent of this year's new interns were matched with the hospital they indicated as first choice, and an additional 10 per cent received their second choice placement. Seventy-four per cent of the hospitals received the student they designated as first choice.

Approximately 95 per cent of this year's interns participated in the plan and 98 per cent of the hospitals offering internships.

Life insurance companies of the United States and Canada will give more than $780,000 this year for research in heart disease, it was announced recently by the Institute of Life Insurance. This brings to $4,700,000 the total amount given since the Life Insurance Medical Research Fund was organized in 1945.

Funds are used entirely on research on diseases of the heart and blood vessels. Grants are given to medical schools and research centers, and fellowships are awarded young doctors working in research fields.

The death rate for 1951 was 9.6 per 1,000 population, according to the Federal Security Agency. This is 10 per cent lower than in 1940. The average life expectancy at birth has risen to 68 years, compared with 47 at the turn of the century.

BLUE SHIELD

Economy Program

At the annual meeting of the Blue Shield Relations Committee, April 29, a report was made on the development of the Blue Cross-Blue Shield economy program which has been under way during the past year. Here is a digest of the report.

How Much Hospital Care Should People Have?

We start our discussion on the economy program by asking a question that cannot be answered and should never be answered. If such a question had been *answered* 100 years ago the modern hospital of today would not exist.

The answer moves on from day to day and is made up of thousands of individual decisions of doctors, patients, changing methods of treatment, more efficient hospital practice and other factors too subtle to trace.

The key problem in our economy program is this: averages are made up out of thousands of individual decisions; but averages cannot be turned around and applied to individual decisions.

In our approach to the economy program we have avoided terms like "abuse," "excessive" and "unnecessary." Instead, we have presented factual information on *differences* in use, admission rate, length of stay.

There is one phrase we have used which may be questioned. We don't exactly know what we mean by it ourselves. It is:

"Natural Practice"

By this we think we mean: "What the doctor would have done for the patient irrespective of ability to pay."

Even this gets into trouble on analysis. If a person pre-pays through Blue Cross, is he not trying to *increase* his ability to pay so that he may have the best of care? Thus the concept of "Natural Practice" keeps expanding.

We had better come back to the relatively safe ground of *differences*.

If generally successful treatment is being carried out in one area on the basis of a shorter length of stay, less drugs, diagnostic aids, etc. . . . then those in areas where similar medical problems are treated on a much longer, more costly basis, may wish to know these facts and think about them.

The basic assumption in our economy program is this: doctors and hospitals would prefer to keep patient costs as low as possible, consistent with contemporary concepts of need.

Thus in essence our economy program is an *information* program. Here is the information (condensed):

IN-PATIENT DAYS PER 1,000 MEMBERS

	Blue Cross Kansas	Blue Cross National	Blue Cross Oklahoma
1949	953	880	828
1950	1,020	895	889
1951	1,091	905	832

In 1951 Blue Cross members in Kansas used 74,400 more days of hospital care than they would have on the basis of the average national rate of use. Compared to Oklahoma, Kansas members used 103,600 more days. At an average cost to Blue Cross of $9.44 per day, Kansas members financed $977,984 more in hospital care than would have been necessary at the Oklahoma rate of use.

The above shows that there are significant differences between Kansas and other areas.

Wide Variations Inside Kansas

In studying the Blue Cross experience within the state we find a considerable variation in the utilization of service. Listed below are a few sample counties which demonstrate in terms of loss ratio these wide variations:

County	No. of Members	Per Cent of Pop. Enrolled	Per Cent of Loss Ratio
A.	1113	17	61.95
B.	1205	40	100.48
C.	890	44	161.44
D.	1875	24	63.67
E.	7215	34	76.94
F.	9514	32	85.44
G.	1488	22	198.50

These broad figures indicate considerable variations in the practice of medicine, the cost of care in the hospital and perhaps in the spread of risk. In small groups fluctuations can also be great and should be expected. A more detailed study in some of the higher use areas indicates a wide range of practice. For example, a study of the cost for hospital care for normal appendectomies shows that in one hospital the average drug charge for these appendectomies was $9.38 per case, whereas in another hospital the average drug charge was $71 per case. They were not unusual cases in the latter instance.

It is our plan to make more detailed analyses along the lines just cited in order that we may bring more specific information to the medical profession in those areas which are higher use areas than others.

Variations in Hospital Costs and Charges

Just as in the matter of use of service there is also considerable variation in the cost and charge for hospital services. While Kansas as a state compares favorably with other states in average hospital costs and charges, there is a wide enough range in costs and charges within the state to justify careful analysis.

For example, the per diem overall charge to Blue Cross members during the last half of 1951 ranged from a low of $8.26 per day to a high of $22.88. The average for the entire state showed a per diem charge of $14.15 per day. The hospital showing a $22 per day charge had an occupancy rate of 42 per cent. Therefore, many factors have a bearing on these charges which need to be analyzed most carefully.

Drug Study

We are cooperating with the Kansas Hospital Association through its Blue Cross Relations Committee in developing an extensive study of drugs and drug charges. It was found during the course of this study that about 70 per cent of all drug charges were for antibiotics and intravenous solutions. Therefore, the study has concentrated on these items. Here again we find a wide range of mark-up made by the various hospitals for their drug items. The Blue Cross Relations Committee is planning a program of information on these variations in the hope that a more uniform pricing policy will evolve.

Meetings With Doctors

During 1951 and 1952 the Blue Shield Relations staff has discussed the economy program with 663 physicians in various hospital staff and county medical society meetings. The discussions have taken the form of an information program very much along the line of the information presented in this report. In no instance has a physician found cause to complain about the approach we have taken in presenting this information. It is too early yet to tell whether or not the economy program will have any effect upon the utilization of service. Studies will be continued to estimate this effect, if any, during the coming year.

Summary

1. Kansas Blue Cross members use services to a considerably greater extent than in most other areas.

2. There are wide variations in use and in medical practice within Kansas.

3. There are wide variations in hospital costs, and pricing policies.

4. At the present time the hospital payment arrangement and the Blue Cross contract have no significant controls which would affect or tend to reduce the use of service.

5. The economy program must be presented as an information program.

6. It will be effective only to the extent that the individual physicians making their own individual decisions attempt to reduce patient costs toward the level of natural use.

7. If the economy program is not effective on a voluntary basis, the time may come when the Blue Cross and all of those who contribute to policy making, such as the hospital association, the Blue Cross Relations Committee, Blue Shield Relations Committee and the State Members' Committee, must face the question as to whether or not they want to set up contractual inhibitions on the use of service.

Radioactive Cortisone for Research

Radioactive cortisone for use in medical research will be manufactured with the aid of funds from the National Institute of Arthritis and Metabolic Diseases, it was announced recently by the Federal Security Agency.

It is thought that radiocortisone will be a valuable tool for scientists, particularly those studying arthritis and the various metabolic diseases involving adrenal gland hormones. Further knowledge of the hormones might benefit 7,500,000 Americans who suffer from rheumatic disease.

The substance has not been produced in sufficient quantity for research studies in the past, but non-radioactive cortisone has been used increasingly in the treatment of rheumatoid arthritis and other diseases since 1948, when workers at the Mayo Clinic discovered its therapeutic value.

The radioactive product will be "tagged" so that cortisone can be traced through the bodies of experimental animals to learn how it produces its effects in health and disease.

A fund of $66,000 will be administered by a small committee of scientists from non-federal research institutions. The product will be distributed to qualified scientists who submit formal research proposals to the National Institute of Arthritis and Metabolic Diseases.

The indisciminate advertising of so-called "wonder drugs" in the lay press was condemned in the inaugural address of the president of the Fifth World Health Assembly, now meeting in Geneva.

"There has been too frequent use of the word 'wonder,'" Dr. Juan Salcedo said, "which, in view of the still experimental nature of some of these products, may be misleading. As a result, inadequate treatment is being attempted, symptoms are masked, resistance is created to future measures, and the basic factors of disease control are ignored by the public, gullible—or desperate—enough to want a speedy cure."

The lowest point ever recorded in infant mortality figures was reported recently by the Federal Security Agency. Infant mortality in 1951 was 20 per 1,000 live births, which is impressive when considered with the rate in 1915, 100 per 1,000.

Senior Thesis from the University of Kansas Medical School*

The Adrenal Cortex and Carbohydrate Metabolism**

Charles E. Krause, M.D.
Kansas City, Missouri

Introduction

Since ACTH and cortisone have become available in quantities large enough to permit their extended use, many workers have reported improvement in "diverse diseases" from treatment with the new drugs. Some attempts have been made to study the effects of the drugs on the body's basic physiology. Most of these efforts have been directed toward a better understanding of the effects on body chemistries, fluid balance, and carbohydrate metabolism.

It shall be the purpose of this paper to trace a few of the developments in our understanding of the role of the adrenal cortex in carbohydrate metabolism.

Early Work With Adrenal Cortex

In 1932 Britton and Silvette[1] reported their results in experiments with an extract of whole adrenal cortex. Using normal cats, rats and rabbits, they obtained elevations in values for blood glucose and for liver and muscle glycogen. The elevations were observed within one hour after injection and persisted in some degree for as long as six hours.

In adrenalectomized animals Britton and Silvette[2] found the values for blood glucose and for liver and muscle glycogen to be reduced below normal, blood glucose and liver glycogen being chiefly affected. They were able to bring about recovery of adrenalectomized animals which were in the terminal stages of insufficiency by administration of cortico-adrenal extract. These workers concluded that the primary function of the adrenal cortex was with carbohydrate metabolism and believed that the death which followed adrenalectomy was due, for the most part, to the disturbance in carbohydrate regulation. So impressed were they with the increases in liver glycogen following use of adrenal cortex extract that they suggested that the increments in hepatic glycogen might form the basis of a relatively simple and economic means of testing the potency of any adrenal extract. They emphasized that recovery of adrenalectomized animals following administration of cortico-adrenal extract was closely correlated with the increases in liver glycogen.

In 1934 these workers[3] reported further experiments with glucose injections in adrenalectomized and normal animals and again emphasized the almost complete inability of the adrenalectomized animals to store glycogen in the liver and to maintain normal values for blood glucose, even with repeated injections of glucose or sodium lactate.

In 1941 Britton and Corey[4] reported work done with adrenalectomized, pancreatectomized, and adreno-pancreatectomized cats. They observed cortico-adrenal extract to be well able to form liver glycogen in the absence of the pancreas but found that insulin was not able to do so in the absence of the adrenal cortex. They concluded that, while insulin might affect favorably the formation of glycogen in muscle, glycogenesis in the liver was largely dependent on the carbohydrate hormone of the adrenal cortex.

Role of the Pituitary

In 1943 Browne et al[6] reported the case of a 40-year-old normal male who developed an abnormally high glucose tolerance curve on the third day of injection of a preparation of anterior pituitary extract. There was also some glycosuria during the time of the curve.

At the present time it is generally accepted that the anterior pituitary produces a hormone which is specific for the adrenal cortex, called adrenocorticotropic hormone or ACTH. In response to stimulation by ACTH, the adrenal cortex produces a number of hormones, one or more of which acts to hold in check the production of ACTH by the pituitary. It is important that this checking effect of the adrenal hormones on the anterior pituitary be understood for it is probably by this method in a large part that the normal body is able to balance and control the anterior pituitary-adrenal cortex system. This control may be compared to that of the anterior pituitary-thyroid system and others.

It has not been established that ACTH has any effect on body physiology, other than through the adrenal hormones whose formation it stimulates.

The anterior pituitary also produces a specific inhibitor of the enzyme hexokinase which will be discussed later.

Functions of the Adrenal Hormones

For the purpose of this brief study we may consider the hormones of the adrenal cortex to be separated into three somewhat distinct groups according to function.[13] It is to be emphasized that mem-

*This is one of 11 senior theses selected for publication by the Editorial Board from a group of 15 judged the best by the faculty of the University of Kansas School of Medicine.

**Thesis written while the author was a senior student at the University of Kansas School of Medicine. Dr. Krause is now serving his internship at General Hospital, Kansas City, Missouri.

Clinical Results* with Banthine® Bromide

(Brand of Methantheline Bramide)

22 Published Reports Covering Treatment of 1443 Peptic Ulcer Patients with Banthine

Comprising the reports published in the literature to date which give specific facts and figures of the results of treatment

AUTHORS	No. of Patients	Chronic, Resistant to Other Therapy	TYPES OF ULCERS				RELIEF OF SYMPTOMS (Chiefly Pain)				Surgery or Complications[1]	Side Effects Requiring Discontinuance of Drug[2]	EVIDENCE OF HEALING			
			Duodenal	Jejunal	Stomal	Gastric	Good	Fair	Poor	No Report			Complete	Moderate	None	No Report
Grimson, Lyons, Reeves	100	100	93	7			80	11	4		5		47		19	29
Friedman	15	15	14			1	5		4	6[3]			2			13
Bechgaard, Nielsen, Bang, Gruelund, Tobiassen	26	26	21			5	16	4	6				8	6	12	
McHardy, Browne, Edwards, Marek, Ward	162		162				136	12	11		3	1	14	9	7	129
Segal, Friedman, Watson	34	34	34[4]				14	13			7	2	5		8	14
Brown, Collins	117	99	117				97	7	8		5	8	55	9	8	40
Asher	77		65		7	5	52	9	16			16		9	21	47
Rodriguez de la Vega, Reyes Diaz	5	4	5				4		1					3	2	
Winkelstein	116	116	102	8		6	102		14				53		18	45
Hall, Hornisher, Weeks	18	18	18				11		1	6[5]			18			
Maier, Meili	38	38	24			14[6]	27	7	4[7]				10	2	5	21
Meyer, Jarman	25	18	25				21		4							25
Polh, Fromm	37	37	37				33	3	1				33	3	1	
Plummer, Burke, Williams	41	41	41				36		5				38		3	
McDonough, O'Neil	104	100	104				63	10	31			11	4		11	89
Broders	60	60	58		1	1	35	19	6				10	1	49[8]	
Legerton, Texter, Ruffin	11		11				11									11
Holoubek, Holoubek, Langlord	76	69	76				35	27	10		4	10	26		10	36
Dgborn	42		39	2		1	42[9]									42
Shaiken	48	48	48				33	10	3		2		33	10	3	
Johnston	145	145	145				143		2			2	143		2	
Rossell, Knox, Slephenson	146		141			5	146					4[10]	53			93
TOTALS	*1443*	*968*	*1380*	*17*	*8*	*38*	*1142*	*132*	*131*	*12*	*26*	*54*	*552*	*52*	*179*	*634*
PERCENTAGES		*67.8*	*95.6*	*1.2*	*0.6*	*2.6*	*81.3*	*9.4*	*9.3*			*3.7*	*70.5*	*6.6*	*22.9*	

1. Not included in tabulations.
2. Included in "Relief of Symptoms" as "Poor" and in "Evidence of Healing" as "None."
3. Four had no symptoms when Banthine therapy was begun.
4. Of which seven were penetrative lesions and five partially obstructive.
5. No symptoms were present in four.
6. Two with symptoms only; no demonstrable ulcer.
7. Three were psychopathic patients and one had a ventricular ulcer of the lesser curvature.
8. Roentgen findings after treatment period of two weeks; forty-seven had duodenal deformity.
9. All returned to work within a week.
10. In these four, after relief of symptoms, Banthine was discontinued because of urinary retention.

During the past two years, more than 200 references to Banthine therapy in peptic ulcer and other parasympathotonic conditions have appeared in medical literature. Of these reports, 22 have presented specific facts and figures on the results of treatment in a total of 1,443 peptic ulcer patients, 67.8 per cent of whom were reported as chronic or resistant to other therapy. These results are tabulated above and show:

"Good" relief of symptoms was obtained in 81.3 per cent of the 1,405 patients on whom reports were available.

"Complete" evidence of healing was obtained in 70.5 per cent of the 883 patients on whom reports were available.

In all but 9.7 per cent, relief of pain was "good" or "fair." In all but 22.9 per cent, evidence of healing was "complete" or "moderate."

During treatment, 26 patients required surgery or developed complications other than ulcer which required discontinuance of the drug before results could be evaluated.

Of the remaining 1,417 patients, only 3.7 per cent experienced side effects sufficiently annoying to require discontinuance of the drug.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

*Volume containing complete references, with abstracts of 39 additional reports, will be furnished on request by

G. D. Searle & Co., P. O. Box 5110, Chicago 80, Illinois.

bers of any one group may, in small degree, possess functions of the other groups. There is also some apparent correlation between function and chemical structure within groups. One group of adrenal cortex hormones is concerned with the function of masculinization, particularly with hair and muscle growth. A second group is concerned with electrolyte and water balance. A third group is the one in which we are most interested, namely the hormone group concerned with protein and carbohydrate metabolism. Compounds representative of this group are Kendall's Compound E (17-hydro 11-dehydrocorticosterone) and Compound F (17 hydroxycorticosterone). Compound E has been synthesized and is now known as cortisone.

Work With Specific Hormones

In 1941 Ingle[5] reported that he had been able to produce prolonged hyperglycemia and glycosuria in rats by the use of 17-hydroxy 11-dehydrocorticosterone. He had observed negative nitrogen balance during the course of administration of the hormone followed by nitrogen retention after the hormone was stopped. He was not able to account for all the glucose excreted on the basis of increased carbohydrate formation from protein and suggested that the hormone probably inhibited the utilization of carbohydrate or altered the interconversion of the foodstuffs in addition to its effect in stimulating the catabolism of protein.

In 1948 Bergner and Deane[7] found that in rats treated with adrenocorticotropin, deposition of glycogen in the liver exceeded 1000 mg. per cent in 24 hours. Chemical determination within six hours showed that the adrenals lost considerable steroid. By 18 hours the adrenal glands were significantly enlarged and in 24 hours deposition of glycogen in the liver exceeded 1000 mg. per cent.

Perfusion Experiments

Corey and Britton[14] observed definite increases in glycogen content of glucose perfused cat liver by the use of cortico-adrenal extract. Definite decreases were observed by the use of insulin and DOCA. Addition of potassium acetate to perfusion fluids prevented the glycogenetic action of cortico-adrenal extract.

Clinical Experiences With ACTH and Cortisone

In the course of clinical trials of both ACTH and cortisone, different investigators have noted alterations in carbohydrate metabolism which correlate to some degree with previous laboratory reports.

Taylor et al[9] treated a group of cancer patients with ACTH and cortisone. They found a change from a normal glucose tolerance curve to a diabetic curve in 11 of 14 patients. In one patient who had previously had a normal glucose tolerance test, glycosuria and hyperglycemia persisted for six weeks after cessation of therapy. One patient manifested hypoglycemia after receiving ACTH.

Mason et al[10] administered ACTH to a normal white 32-year-old woman. They did not observe any decreased carbohydrate tolerance as measured by the glucose tolerance test but the results of the insulin tolerance test suggested an increased resistance to insulin. Here is evidence that the adrenal carbohydrate hormones may have some antagonistic action toward insulin at least insofar as the blood glucose level is concerned.

Forsham et al[11] administered Compound F to a patient with Addison's disease who did not respond to ACTH. Under conditions of controlled starvation, there was a gradual fall in blood sugar level throughout a 13-hour period. A similar fall in blood sugar level was observed in another trial with ACTH treatment. With Compound F not only was the progressive fall in blood pressure prevented, but the level of blood sugar at the termination of the fast exceeded the pre-injection level. They did not undertake to explain the source of the additional carbohydrate.

Conn et al[17] administered ACTH to three normal subjects. They observed glycosuria, hyperglycemia and increased uric acid excretion closely paralleling the administration of ACTH. Two subjects developed negative nitrogen balance which persisted five to six days following cessation of ACTH. All subjects developed some loss of carbohydrate tolerance which persisted up to two weeks following cessation of treatment. These observers pointed out that the amount of extra carbohydrate which accumulated in body fluids and which was excreted in the urine was far in excess of that which could be accounted for on the basis of increased conversion of body protein to carbohydrate. They therefore supported the view that the reduced carbohydrate tolerance was due to some type of over all decrease in the capacity of the subject to dispose of glucose normally by oxidation or conversion to fat.

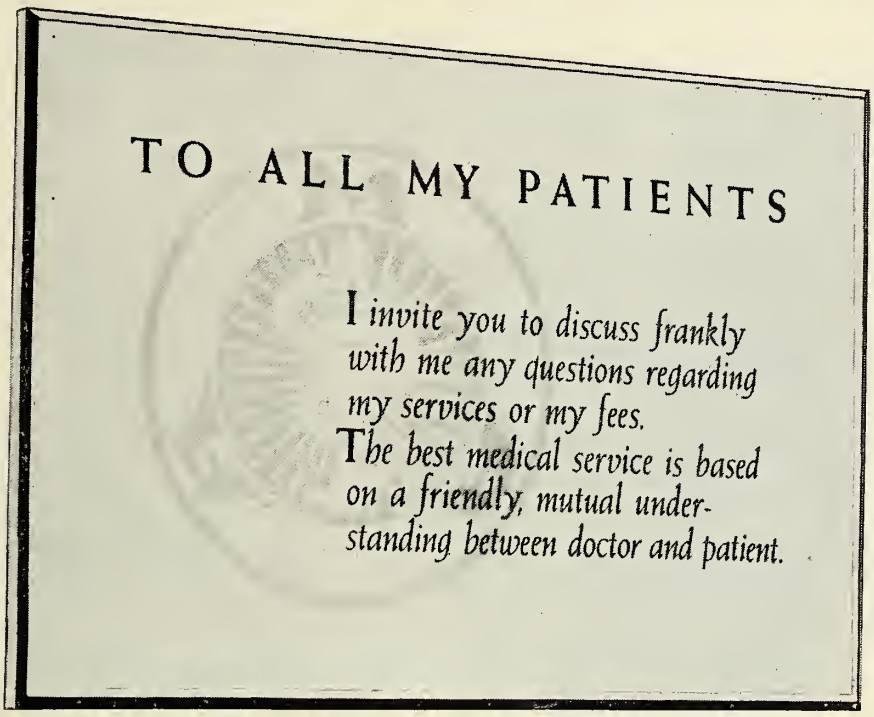
Thorn et al[13] reviewed the relation of pituitary-adrenal function to rheumatic disease. They commented not only on the increases in blood glucose levels and liver glycogen stores from the action of adrenal cortex hormone but also on the increased mobilization of depot fat and its enhanced utilization, thus sparing carbohydrate. They further stated that the increased conversion of protein to carbohydrate was brought about, not by an increased catabolism of body protein, but rather by diverting amino acid radicals to pyruvic acid and glucose (anti-anabolic effect).

In 1950 Hench, Kendall, Slocumb and Polley[12] made an extensive report on their results with ACTH and cortisone. They pointed out that in

announcing

A NEW PUBLIC RELATIONS AID

. . . to boost your PR rating



NEW OFFICE PLAQUE

- ✓ **dark brown lettering on buff**
- ✓ **harmonizes with any office decor**
- ✓ **measures 11½ by 7¾ inches**
- ✓ **for desk or wall**
- ✓ **laminated plastic finish**

As you know, a physician's best public relations is carried on right in his own office. Here the physician gets acquainted with his patients . . . gives them a chance to talk over problems . . . builds a feeling of mutual understanding between patient and doctor.

Your American Medical Association has designed an attractive new office plaque to be displayed prominently on an office desk or wall. This is a graphic invitation to patients to talk over professional services and fees. Patients like to ask questions, but often are hesitant to do so. This plaque will open the door to better relations with your patients. Order one today.

PRICE
$1
POSTPAID

Order Department
AMERICAN MEDICAL ASSOCIATION
535 North Dearborn Street
Chicago 10, Illinois

rheumatoid arthritis patients without latent or frank diabetes, cortisone and ACTH might not reduce carbohydrate tolerance significantly but that in patients with latent or frank diabetes, these hormones will probably produce a more marked reduction of carbohydrate tolerance.

Sprague et al[19] observed abnormal glucose curves in four of 12 patients receiving cortisone. In two of these cases there was a family history of diabetes.

Boland and Headley[20] studied effects of smaller maintenance doses of cortisone in 42 patients with rheumatoid arthritis. In 24 of these patients standard carbohydrate tolerance tests were done before, and at varying intervals during cortisone therapy. Before cortisone therapy, results of tests were normal in 21 patients and abnormal in three. Of the three patients with initially abnormal tolerances, two exhibited curves typical of latent diabetes mellitus, and in the other the findings were those of renal glycosuria. One of the patients with latent diabetes received cortisone continuously for 98 days with no evidence of clinical diabetes and no change in repeated tolerance tests. The other diabetic patient was given cortisone continuously for 79 days with some irregular glycosuria and some change in the tolerance tests. The laboratory status of the patient with renal glycosuria did not change after 174 days of hormone administration. Significant decreases in carbohydrate tolerance developed during cortisone therapy in two of the 21 patients, in one patient after 133 days of therapy and in the other after 104 days of therapy. Cortisone therapy was continued in both patients with no glycosuria or other clinical evidence of diabetes.

Bolinger and Delp[21] studied the effects of ACTH on liver function in 32 patients. They divided their patients into two groups depending upon presence or absence of liver dysfunction prior to treatment. Their first group consisted of 21 patients undergoing treatment with ACTH for various conditions but showing no evidence clinically or bio-chemically of liver dysfunction. The second group consisted of 11 patients showing some evidence of liver dysfunction. Fourteen patients of Group I and seven patients of Group II had glucose tolerance tests before treatment and again during or immediately after treatment. There was reduced carbohydrate tolerance in both groups but the Group II patients showed a more definite trend toward exaggeration of the diabetic state.

The Role of Insulin

Thorn et al[13] stated that insulin antagonizes the tendency of ACTH and cortisone to reduce the utilization of carbohydrate and to stimulate gluconeogenesis. The hyperglycemia following administration of either ACTH or cortisone results in an increased demand for insulin, which is adequately met by increased insulin production in most patients. In rare cases, however, diabetes develops in those patients unable to meet the excessive demand for insulin. After the withdrawal of ACTH or cortisone the patient may experience a period of relative hypoglycemia as a consequence of persistent insulin overproduction. The hypoglycemia may be due, in part, to the fact that the anterior pituitary of the patient is depressed during substitution therapy so that for a period following discontinuation of therapy, the patient's own adrenal cortex is stimulated at a level even lower than before treatment.

The action of insulin on hexokinase inhibitor will be discussed in the next section.

Role of Enzymes

Some advances have been made in our understanding of the enzyme systems involved in the cellular action of the adrenal steroids.[20] It has been suggested that one of the basic steps in metabolism of glucose may be the point of action of adrenal cortical hormones. The enzyme hexokinase, which seems to occur in all living cells, is thought to catalyze the conversion of glucose to glucose-6-phosphate by an irreversible exergonic reaction:

$$(1)\ \text{glucose} + \text{adenosine triphosphate} \xrightarrow{\text{hexokinase}} \text{glucose-6-phosphate} + \text{adenosine diphosphate}$$

An important consequence of this reaction is that it converts the freely diffusing glucose into a phosphate which crosses membranes with difficulty and is thereby pictured as serving to capture glucose molecules in the intracellular compartment.

The conversion of glucose-6-phosphate back to glucose, however, is entirely another matter. The enzyme required for this reaction is thought to be a specific glucose-6-phosphatase which appears to be abundantly present in liver but lacking in striate muscle:

$$(2)\ \text{glucose-6-phosphate} \xrightarrow{\text{phosphatase}} \text{glucose} + \text{phosphate ion}$$

Glucose-6-phosphate may also be converted to glucose-1-phosphate and then to glycogen or it may be converted to fructose-6-phosphate by a reversible type of reaction. So we see that glucose-6-phosphate is a sort of key compound in the metabolism of glucose.

As mentioned previously, the anterior pituitary gland produces a specific inhibitor of the enzyme

From among all antibiotics, Orthopedic Surgeons often choose

New aureomycin minimal dosage for adults—four 250 mg. capsules daily, with milk.

AUREOMYCIN

Hydrochloride Crystalline

because

Aureomycin, following oral administration, diffuses rapidly into the skeletal and structural tissues of the body.

Aureomycin exhibits little tendency to favor the development of resistant bacterial strains.

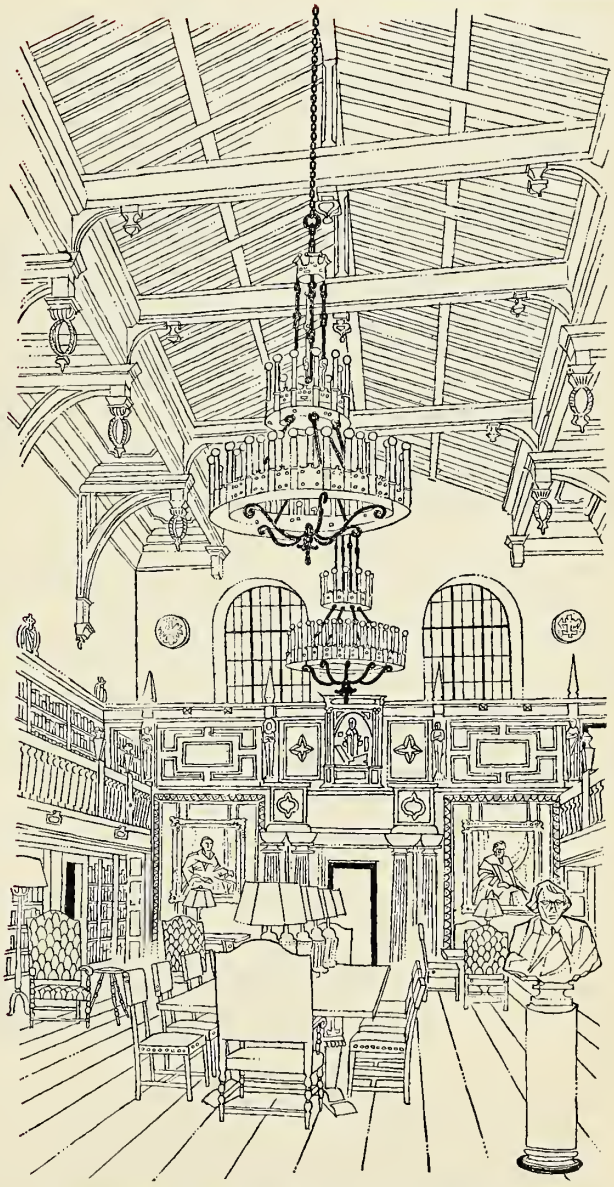
Aureomycin in daily repeated small dosage gives satisfactory serum levels, and may be continued over a long period.

Aureomycin has been reported to be clinically effective against susceptible organisms in the following conditions frequently seen by the orthopedic surgeon: Suppurative Arthritis • Osteomyelitis Infected Compound Fractures • Osteitis Brucella Arthritis • Periostitis

Throughout the world, as in the United States, aureomycin is recognized as a broad-spectrum antibiotic of established effectiveness.

Capsules: 50 mg.—Bottles of 25 and 100; 250 mg.—Bottles of 16 and 100. *Ophthalmic:* Vials of 25 mg. with dropper; solution prepared by adding 5 cc. of distilled water.

LEDERLE LABORATORIES DIVISION
AMERICAN Cyanamid COMPANY
30 Rockefeller Plaza, New York 20, N. Y.



The Reading Room, Folger-Shakespeare Library, Washington, D. C.

hexokinase (reaction 1). It appears to operate predominantly on the hexokinase of muscle and liver cells, and has little or no effect on the hexokinase contained in the cells of the central nervous system, the renal tubule or the intestinal mucosa.

One of the actions of the secretion of the adrenal cortex appears to be an enhancement and prolongation of the action of this pituitary hexokinase inhibitor.

An important action of insulin lies in its antagonism to the action of the inhibitor of hexokinase.[22] Whereas insulin has no effect on hexokinase itself, it does serve to release this enzyme from the inhibition imposed on it by the anterior pituitary and the adrenal cortex. Thus we see that the key reaction, conversion of glucose to glucose-6-phosphate, is regulated by an intricate interplay of hormonal and enzyme substances.

Conn et al[17] reported a fall in blood levels of glutathione (and perhaps other sulfhydryl bearing substances). They suggested that the reduced amount of glutathione may diminish enzymatic production or reduce the release of pancreatic insulin. The diabetes of Cushing's syndrome has been described as being associated with a low blood glutathione level. Conn suggested that the reduction in glutathione also might explain the increased uric acid production which is associated with increased adrenal cortex activity.

What then, should we expect from an increase of adrenal cortex hormones? On the surface, one might expect it to produce the same picture as that of insulin lack. With insulin lack, phosphorylation of glucose proceeds less rapidly, glucose tends to accumulate in the extra-cellular compartment, glucose-6-phosphate is formed in less quantity in muscle and liver cells and products derived from glucose-6-phosphate are secondarily formed at less than normal rates. This picture is, in fact, a good description of the biochemical defect in diabetes mellitus.

Increase of adrenal cortex hormones, however, duplicates the picture of insulin lack or diabetes mellitus only in part. In unregulated diabetes mellitus, the liver is depleted of glycogen. In the reduced carbohydrate tolerance of adrenal cortex hormone excess, there is increased liver glycogen. This increase in liver glycogen was pointed out by the earlier workers using adrenal cortex preparations on laboratory animals and has lately been observed clinically as will be described in the next section.

Role of the Liver

Bollinger and Delp,[21] in their series of cases, studied the effect of ACTH on liver glycogen by staining sections obtained from liver punch biopsy both with Gomori's silver stain for glycogen and with routine H and E. In two patients with extensive liver damage, sections taken after treatment with ACTH and stained with Gomori's glycogen stain showed a marked increase in liver cell glycogen over sections obtained before treatment. Comparison of H and E stained sections taken after treatment with those obtained before treatment showed increase in size of liver cells and the appearance of reticulated, foamy appearing cytoplasm. The increase in glycogen was accompanied by a definite decrease in fat vacuoles from the cells. This decrease in fat vacuoles could have been brought about by decreased delivery of fat to the liver or by increased utilization of fat from the liver by the tissues. It was their opinion that the increase in size and the changes in the appearance of the cytoplasm could all be accounted for by the marked increase in content of liver glycogen. As previously mentioned, they pointed out that the diabetogenic effect of ACTH is probably augmented in the patient with liver disease. Their data supported the idea that the liver forms a significant link in the chain of reaction resulting from adrenal cortical stimulation in the human. There have been no reports of clinical studies on the effects of increased adrenal cortex hormone on muscle glycogen in the human.

Thus we see that the actions of the adrenal cortex hormones as they affect carbohydrate metabolism are intricately meshed with liver cell activity, certain enzyme actions, the action of insulin, protein metabolism, fat metabolism and possibly with the actual production of insulin and certain enzymes. It is probably true that, in health, the adrenal cortex hormones are not secreted entirely for the purpose of balancing the actions of other hormones but that the adrenal cortex hormones have certain primary actions which require their presence in absolute optimum quantities.

Summary and Conclusions

1. The anterior pituitary produces adrenocorticotropin (ACTH) which specifically stimulates secretion of adrenal cortex hormones.

2. Compound E (cortisone) and Compound F are two hormones of the adrenal cortex which have been found to have definite effects on carbohydrate metabolism.

3. Increase in adrenal cortex hormones produces increase in blood sugar values, increase in liver glycogen, increased gluconeogenesis, decreased utilization of carbohydrate, and increased utilization of fat.

4. The conversion of glucose to glucose-6-phosphate is a key reaction in the metabolism of glucose. The reaction is thought to be brought about by an ubiquitous enzyme, hexokinase, which acts in only one direction, that is, in conversion of glucose to glucose-6-phosphate. Conversion of glucose-6-phos-

Now Offering to the

MEMBERS OF THE KANSAS MEDICAL PROFESSION

A Lifetime Income Protection

WITH SPECIAL RENEWAL AGREEMENT

Issued by

UNITED INSURANCE COMPANY

CHICAGO, ILLINOIS

SICKNESS OR ACCIDENT
(Total Disability)

Monthly Benefit for Accident for life..... **$300.00**

Monthly Benefit for Sickness for 12 months..... **$300.00**

And then $150 per month thereafter
FOR LIFE
Confinement Not Required

Total Monthly Benefit in Hospital for 3 months..... **$600.00**
(Including Disability Benefit Above)

SPECIFIED TRAVEL ACCIDENTS

Monthly Benefit FOR LIFE **$600.00**

Total Monthly Benefit in Hospital for 3 months..... **$900.00**
(Including Disability Benefit Above)

ORDINARY ACCIDENTS

Loss of both hands, feet, eyes; one hand and one foot; either hand or foot and one eye, monthly benefit FOR LIFE **$300.00**

Loss of either hand or foot monthly benefit for 20 months.... **$300.00**

Loss of sight of one eye monthly benefit for 10 months..... **$300.00**

Loss of Life..... **$5,000.00**
(and in addition, the monthly and hospital benefit for the period between date of accident and date of death)

SPECIFIED TRAVEL ACCIDENTS

All Ordinary Accident Loss of Limb, Sight and Life benefits above will be doubled if such accident occurs while riding as a passenger on any railway or street railway passenger car or bus.

House Confinement Not Required to Receive Full Benefits

WAIVES PREMIUM DURING TOTAL DISABILITY CONTINUING FOR MORE THAN 90 DAYS
PROFESSIONAL INCOME POLICY WITH OUTSTANDING FEATURES

★ Pays Monthly Benefits from 1st day of medical attention to life
★ Pays Benefits for Both sickness and accident
★ Pays Lifetime Benefits for Time or Specific Losses
★ Pays Regular Benefits for Commercial Air Travel
★ Pays Benefits for Non-Disabling Injuries
★ 24-hour Coverage—On or Off the Job
★ Special Renewal Agreement, no Terminating Age
★ 33 Years of Service to the Public
★ Incontestable Clause
★ The Silent Partner
★ No Increase in Premium
★ No Terminating Age
★ Grace Period 10 Days
★ Non-Pro-Rating
★ Non-Assessable
★ Non-Aggregate

FULL INFORMATION WILL BE PROMPTLY FORWARDED

UNITED INSURANCE COMPANY

LIFETIME PROFESSIONAL INCOME DEPARTMENT
387 New Brotherhood Building, Kansas City, Kansas

Name_____

Address_____

Age_____

phate to glucose, however, is catalyzed by a specific phosphatase, thought to be abundant in liver but lacking in striate muscle.

5. The anterior pituitary secretes an inhibitor to hexokinase. The action of this hexokinase inhibitor is enhanced and prolonged by adrenal cortex hormones and antagonized by insulin.

6. Hyperglycemia resulting from ACTH or cortisone treatment stimulates secretion of insulin. In patients unable to meet the demand for increased insulin, clinical symptoms of diabetes may develop.

7. The diabetes resulting from excess adrenal cortical hormones is accompanied by increased liver glycogen in sharp contrast to diabetes mellitus in which there is depletion of liver glycogen.

8. There is some evidence that the diabetogenic action of adrenal cortex hormones may be augmented in patients with liver disease, thus supporting the contention that the actions of the adrenal cortex hormones may be closely linked with liver function.

Bibliography

1. Britton, S. W., and Silvette, H.: Effects of Cortico-Adrenal Extract on Carbohydrate Metabolism in Normal Animals. Am. Jnl. of Phys., 100:693-700, 1932.
2. Britton, S. W., and Silvette, H.: The Apparent Prepotent Function of the Adrenal Glands, Jnl. of Phys., 100:701-713, 1932.
3. Britton, S. W., and Silvette, H.: On the Function of the Adrenal Cortex—General, Carbohydrate and Circulatory Theories. Am. Jnl. of Phys., 107:190-206, 1934.
4. Britton, S. W., and Corey, E. L.: Pancreatic and Cortico-Adrenal Involvement in Carbohydrate Regulation. Am. Jnl. of Phys., 131:790-798, 1941.
5. Ingle, Dwight J.: The Production of Glycosuria in the Normal Rat by Means of 17-Hydroxy-11-Dehydrocorticosterone. Endocrinology, 29:649, October, 1941.
6. Brown, J. S. L., Schenker, V., and Stevenson, J. A. F: Effect of Corticotropin on Nitrogen and Carbohydrate Metabolism. Conference on Metabolic Aspects of Convalescence, Including Bone and Wound Healing. Josiah Macy, Jr. Foundation, June 11-12, 1943.
7. Bergner, Grace E., and Deane, Helen W.: Effects of Pituitary Adrenocorticotropic Hormone on the Intact Rat, with Special Reference to Cytochemical Changes in the Adrenal Cortex. Endocrinology, 43:240-260, October, 1948.
8. Ragan, C., Grokoest, A. W., and Boots, R. H.: Effect of Adrenocorticotropic Hormone (ACTH) on Rheumatoid Arthritis. Am. Jnl. of Med., 7:741, December, 1949.
9. Taylor, Samuel G. III, Ayer, John P., and Morris, Roger S., Jr.: Cortical Steroids in Treatment of Cancer. J.A.M.A., 144: 1058-1064, November 25, 1950.
10. Mason, Harold L., Power, Marschelle H., Rynearson, Edward H., Ciaramelli, Letizia C., Li, Choh Hao, and Evans, Herbert M.: Results of Administration of Anterior Pituitary Adrenocorticotropic Hormone to a Normal Human Subject. Journal of Clinical Endocrinology, 8:1-14, January, 1948.
11. Forsham, Peter H., Thorn, George W., Prunty, F. T. Garnet, and Hills, A. Gorman: Clinical Studies with Pituitary Adrenocorticotropin. Jnl. of Clin. End., 8:15, January, 1948.
12. Hench, Philip S., Kendall, Edward C., Slocumb, Charles H., and Polley, Howard F.: Effects of Cortisone Acetate and Pituitary ACTH on Rheumatoid Arthritis, Rheumatic Fever and Certain Other Conditions. Arch. of Int. Med., 85:545-666, April, 1950.
13. Thorn, George W., Bayles, Theodore B., Massell, Benedict F., Forsham, Peter H., Hill, S. Richardson, Jr., Smith, Stephen III, and Warren, Joseph E.: Studies on the Relation of Pituitary-Adrenal Function to Rheumatic Disease. The New England Jnl. of Med., 241:529-537, October 6, 1949.
14. Corey, E. L., and Britton, S. W.: Glycogen Levels in the Isolated Liver Perfused with Cortico-Adrenal Extract, Insulin and Other Preparations. Am. Jnl. of Phys., 131-783-78°, 1949.
15. Thorn, George W., Forsham, Peter H., Frawley, Thomas F., Hill, S. Richardson, Jr., Roche, Marcel, Stahelin, Dietrich, and Wilson, D. Laurence: The Clinical Usefulness of ACTH and Cortisone. New England Jnl. of Med., 242:783, May 18, 1950.
16. Thorn, George W., Forsham, Peter H., Prunty, F. T. G., and Hills, A. Gorman: A Test for Adrenal Cortical Insufficiency. J.A.M.A., 137:1005-1009, July 17, 1948.
17. Conn, Jerome W., Louis, Lawrence H., and Wheeler, Clayton E.: Production of Temporary Diabetes Mellitus in Man with Pituitary Adrenocorticotropic Hormone, Relation to Uric Acid Metabolism. Jnl. of Lab. and Clin. Med., 33:651-661, June, 1948.
18. Boland, Edward W., and Headley, Nathan E.: Management of Rheumatoid Arthritis with Small (Maintenance) Doses of Cortisone Acetate. J.A.M.A., 144:365-372, September 30, 1950.
19. Sprague, Randall G., Power, Marschelle H., and Mason, Harold L.: Physiological Effects of Cortisone and Pituitary Adrenocorticotropic Hormone (ACTH) in Man. J.A.M.A., 144:1341-1347, December 16, 1950.
20. Stetten, DeWitt, Jr.: Carbohydrate Metabolism. Am. Jnl. of Med., 7:571-584, November, 1949.
21. Bolinger, Robert E., and Delp, Mahlon H.: The Effects of ACTH on Liver Function. Jnl. of the Kan. Med. Soc., 52:99-106, March, 1951.
22. Price, W. H., Cori, C. F., and Colowick, S. P., Effect of Anterior Pituitary Extract and of Insulin on Hexokinase Reaction. J. Biol. Chem., 160:633-634, October, 1945.

THE KANSAS PRESS LOOKS AT MEDICINE

Editor's Note. In this section the Journal reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

Setback in Socialism

Years ago, the Oregon State Medical Society set up a prepaid hospitalization program, which Oregon people could join at a modest monthly cost if they wished to. In 1949, the government brought an anti-trust suit against the plan's sponsors, in which the main claim was that participating doctors conspired to eliminate prepaid medical care plans not sponsored by themselves.

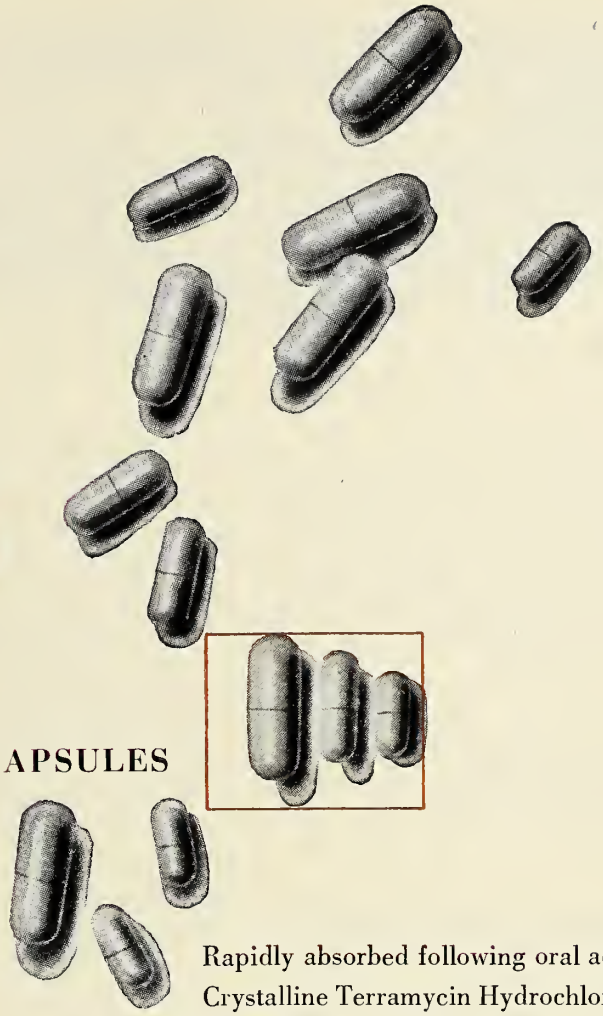
After a five-months trial, resulting in an 8,000 page court record, a federal judge threw out the suit in toto. He held that the Oregon doctors had established their plan to "save their profession from socialism," and that no court should require organized medicine to "remain a sitting duck while socialism overwhelms it."

This didn't satisfy the government, however. At a heavy cost to both the taxpayers and the defendants, the case was taken to higher courts. It finally ended last April, when the United States Supreme Court, with but a single dissent, upheld the trial court and tossed out the monopoly charges.

Of this, the president of the Oregon State Medical Society said: "In my opinion this decision is a sharp setback for the administration forces in their campaign to regiment the American people and the American medical profession under a Federal compulsory health insurance system." And the Portland Oregonian said editorially: "The United States Supreme Court upheld an enlightened effort on the part of medical men to meet a social need. . . The decision is a victory for a profession that has tried successfully to solve a pressing problem by its own initiative."

So socialized medicine has taken one more setback—and the cause of free, voluntary action by a free people has taken a step forward.—*El Dorado Times, May 20, 1952.*

Terramycin



CAPSULES

Rapidly absorbed following oral administration, Crystalline Terramycin Hydrochloride Capsules elicit prompt therapeutic response in acute and chronic infections involving a wide range of organs, systems and tissues. Its broad spectrum of antimicrobial activity encompasses organisms of the bacterial and rickettsial as well as certain spirochetal, viral and protozoan groups.

Supplied: 250 mg., bottles of 16 and 100;
100 mg., bottles of 25 and 100;
50 mg., bottles of 25 and 100.

Terramycin is also available as:
Elixir, Oral Drops, Intravenous, Ophthalmic Ointment, Ophthalmic Solution.

ANTIBIOTIC DIVISION Pfizer CHAS. PFIZER & CO., INC., *Brooklyn 6, New York*

ANNOUNCEMENTS

A five-day postgraduate course in "Diagnosis in Internal Medicine with Emphasis on Physical Diagnosis" will be given at the University of Colorado School of Medicine, Denver, July 21-25, under the direction of Dr. James J. Waring. The 40 hours of work can be applied toward fulfilling postgraduate study requirements of the American Academy of General Practice. Complete information may be secured from the Office of Graduate and Postgraduate Education, University of Colorado Medical Center, 4200 East Ninth Avenue, Denver 20, Colorado.

* * *

The 30th annual scientific and clinical session of the American Congress of Physical Medicine will be held at the Roosevelt Hotel, New York City, August 25-29. All sessions will be open to members of the profession in good standing with the A.M.A. Full information may be obtained from the Congress, 30 North Michigan Avenue, Chicago 2, Illinois.

* * *

The 38th annual clinical congress of the American College of Surgeons will be held in New York City, September 22-26, with headquarters at the Waldorf-Astoria.

* * *

The National Gastroenterological Association announces that its fourth annual course in postgraduate gastroenterology will be given at the Hotel Statler, New York City, October 23-25. A distinguished faculty will present the program, and one complete session will be devoted to a clinical pathological conference at the Mt. Sinai Hospital. Correspondence may be addressed to the association, Department GSJ, 1819 Broadway, New York 23, New York.

* * *

Delegates from 12 nations, meeting in Rio de Janeiro last October, founded a new world medical society known as the International Fertility Association. Their first congress on fertility and sterility will be held in New York City in May, 1953, in conjunction with the meeting of the American Society for the Study of Sterility.

Aims of the new organization are to study the problems of fertility and sterility in their broad implications, to stimulate scientific investigation and social awareness in the specialty, to standardize and orient nomenclature, terminology, tests and evaluation of diagnostic methods and therapy throughout the world, and to hold international congresses in different parts of the world.

Dr. Abner I. Weisman, 1160 Fifth Avenue, New York City, can supply information on the organization.

* * *

The National Gastroenterological Association is offering a cash award of $100 and a certificate of merit for the best unpublished contribution on gastroenterology or allied subjects. Contestants, who must be members of the A.M.A., are to submit essays no longer than 5,000 words to the association, 1819 Broadway, New York 23, New York, not later than September 1, 1952.

* * *

The Foundation of the American Society of Plastic and Reconstructive Surgery offers awards in junior and senior classifications for original contributions in this field. The awards in the junior classification, plastic surgeons in the specialty not longer than five years, will be two six-months scholarships in leading plastic surgery services in the United States, England and Italy. In the senior classification the award will be a silver plaque.

Entries must be received not later than September 1, 1952. Inquiries are to be addressed to the Award Committee, care of Jacques W. Maliniac, M.D., 11 East 69th Street, New York 21, New York.

* * *

The 14th annual mid-summer conference of the Rocky Mountain Radiological Society will be held in Denver, Colorado, at the Shirley Savoy Hotel on August 7, 8 and 9. In addition to the formal program presented by outstanding guest speakers, there will be a symposium on diseases of animals transmissible to man, studied from veterinary, pathological and clinical viewpoints. Round table luncheon discussions will be held. One evening meeting will include a joint session with the Denver Medical Society, another will present an informal banquet, and the meeting will be concluded with a picnic.

Among speakers at the conference is Dr. H. H. Dunham, Kansas City, who will discuss "Lymphosarcoma—A Review of 100 Cases."

All advertisements appearing in this Journal are carefully screened. The items, services and messages presented are committee-accepted. Our standards are of the highest. Advertisers like our journal—that's why they selected it for use in their promotional program. They seek your patronage, and your response encourages continued use of our publication. When you send inquiries, tell them that you read their advertisement in the Journal of the Kansas Medical Society.

WHEN FOOD INTAKE *is inadequate*

When the patient's food intake is inadequate to supply essential nutrients in proper amounts, clinical experience has demonstrated the supportive value of a dietary supplement providing substantial quantities of virtually all needed nutrients—protein, vitamins, minerals, carbohydrate, and fat. The choice of the supplement prescribed, to a large extent, can determine the efficacy of the supplemented diet since over-all nutrient adequacy is the primary aim.

It is apparent from the data shown below that Ovaltine in milk can serve well in markedly increasing the intake of virtually all known nutrients. Taken daily during periods of inadequate consumption of other foods, it offers an excellent means for preventing subclinical nutritional deficiencies which can undermine general health or retard recovery from illness.

The appealing flavor of Ovaltine makes it acceptable to children as well as adults, including the aged. Ovaltine in milk is easily digested, an important feature when digestive disturbances are a factor.

Patients have the choice of either Plain or Chocolate Flavored Ovaltine, both of which are similar in their wealth of nutrients.

THE WANDER COMPANY, 360 N. MICHIGAN AVE., CHICAGO 1, ILL.

Ovaltine

Three Servings of Ovaltine in Milk Recommended for Daily Use Provide the Following Amounts of Nutrients

(Each serving made of ½ oz. of Ovaltine and 8 fl. oz. of whole milk)

MINERALS		VITAMINS	
*CALCIUM	1.12 Gm.	*ASCORBIC ACID	37 mg.
CHLORINE	900 mg.	BIOTIN	0.03 mg.
COBALT	0.006 mg.	CHOLINE	200 mg.
*COPPER	0.7 mg.	FOLIC ACID	0.05 mg.
FLUORINE	3.0 mg.	*NIACIN	6.7 mg.
*IODINE	0.7 mg.	PANTOTHENIC ACID	3.0 mg.
*IRON	12 mg.	PYRIDOXINE	0.6 mg.
MAGNESIUM	120 mg.	*RIBOFLAVIN	2.0 mg.
MANGANESE	0.4 mg.	*THIAMINE	1.2 mg.
*PHOSPHORUS	940 mg.	*VITAMIN A	3200 I.U.
POTASSIUM	1300 mg.	VITAMIN B_{12}	0.005 mg.
SODIUM	560 mg.	*VITAMIN D	420 I.U.
ZINC	2.6 mg.		

*PROTEIN (biologically complete)	32 Gm.
*CARBOHYDRATE	65 Gm.
*FAT	30 Gm.

*Nutrients for which daily dietary allowances are recommended by the National Research Council.

BOOK REVIEWS

Current Therapy—1952. Edited by Howard F. Conn. Published by W. B. Saunders Company, Philadelphia. 849 pages. Price $11.

The book is a compendium of current therapeutic methods and is divided into sections according to a convenient subdivision of diseases. The sections are: Infectious Diseases, Diseases of the Respiratory System, Diseases of the Cardiovascular System, Diseases of the Blood and Spleen, Diseases of the Digestive System, Disorders of Metabolism and Nutrition, Diseases of the Endocrine System, Diseases of the Urogenital Tract, Venereal Diseases, Allergic Diseases, Diseases of the Skin, Diseases of the Nervous System, Diseases of the Locomotor System, Obstetric and Gynecologic Conditions, Diseases due to Physical and Chemical Agents, and Appendices and Index.

Each of the sections is subdivided into individual disease conditions with excellent cross indexing so that they may be easily found. The sections are written by different authors with the treatment of each disease described by a recognized authority. In most cases the presentation assumes that the diagnosis has already been made, and the treatment then is outlined in a concise manner without extensive reference to theory and in such a way that the techniques of the treatment are readily available. In some instances where disagreement among the authorities exists, presentation by each of the different authors is included.

This book should form a valuable desk reference to the general practitioner, the internist and the general surgeon, and in many cases should be of use to the specialist. Because of its large volume, however, there are no bibliographic references attached, and it would seem that the value of the book might be increased by including one or two recent pertinent bibliographic references to most of the conditions.—*R.E.B.*

* * *

Rheumatic Diseases. American Rheumatism Association. Published by W. B. Saunders Company, Philadelphia. 449 pages, 126 figures, 63 tables. Price $12.

This volume, one of the Postgraduate Series in Medicine and Surgery, represents a compilation of the reports given at the Seventh International Congress on Rheumatic Diseases on May 31, 1949. In such compilation the Editorial Committee accomplished the very difficult task of omitting certain papers which duplicated others in general context, abstracting some, publishing many in full length, providing adequate space for the comments of discussants which many times are of importance equal to the paper itself, and of arranging the material in sections for ready reference and study. The 195 contributors represent a distinguished group of physicians, surgeons and laboratory investigators as well as those prominent in the basic science fields.

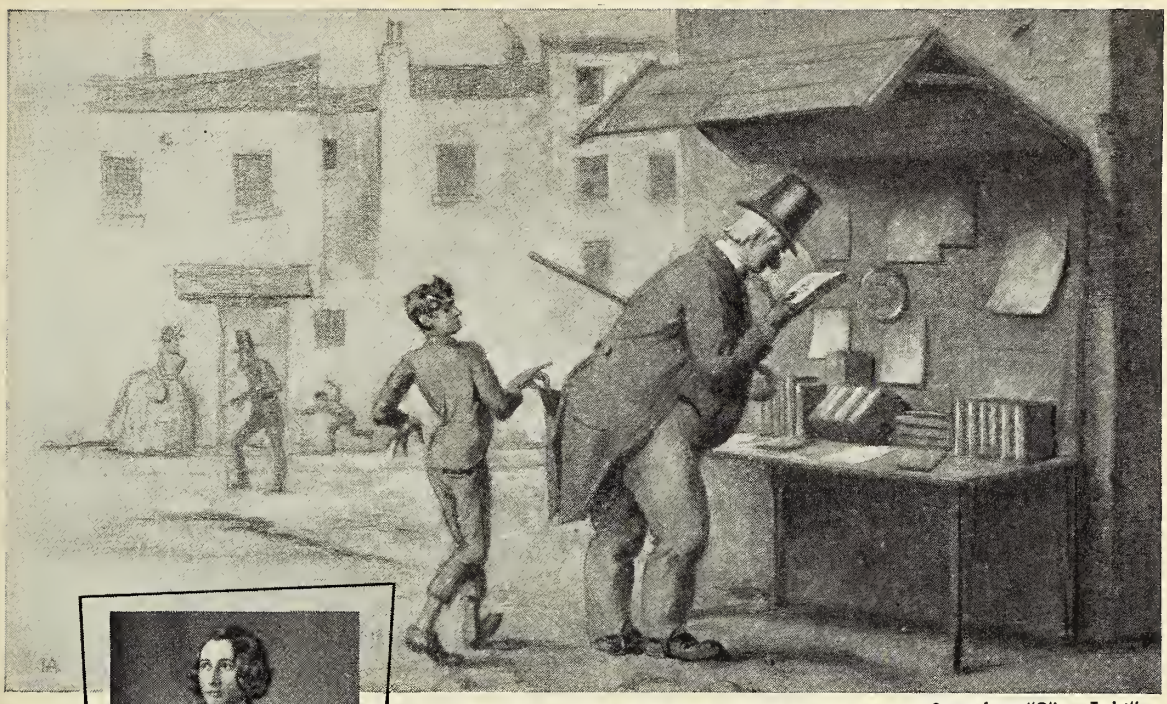
The arrangement of the book into the following sections permits ready reference to any portion of its contents: general information about rheumatic diseases; rheumatic fever; rheumatoid arthritis and related syndromes; fibrositis, psychogenic rheumatism and osteoarthritis; less common types of rheumatic diseases; the various treatment approaches; and finally, an exhaustive section on laboratory and investigative studies in the rheumatic diseases.

The quality of the work presented is indeed textbook in character. The physician who is interested in the many aspects of the rheumatic diseases will find this volume an excellent text as well as a reference source. Fibrositis and psychogenic rheumatism which have received relatively scant attention in the American literature are presented with clarity and completeness. By no means is the bulk of the contributions on treatment limited to the medical management of these conditions; surgical, orthopedic, psychiatric and physical medicine management are all adequately represented. In fact, the section dealing with the widely publicized steroid treatment is the one disappointing feature of an otherwise excellent book. At the time the Congress was held, barely eight months had elapsed since ACTH and cortisone had first been administered clinically. Now at the time of publication, nearly three years later, during which time a tremendous volume of experience has developed in the use of these compounds, the reports are couched in the tenor of the times when a series of a few cases was all that anyone had. Although the Editorial Committee excused this on the grounds that it served as a milepost of progress along a difficult road, in a postgraduate sense it serves a purpose of limited usefulness; the honors heaped upon Hench and his associates are reminders, if such be needed, that this milepost of progress did not pass unnoticed.

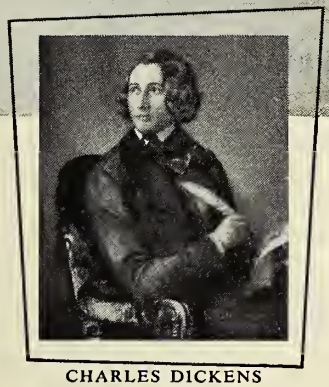
With this minor criticism, the reviewer believes that the volume is of definite and lasting value to clinicians and investigators alike. The busy clinician particularly will enjoy the shortness and conciseness of the individual contributions. The medical student interested in rheumatology will find a tremendous source of references pertaining to all aspects of this field. The psychiatrist, orthopedist and physiatrist will utilize this volume repeatedly as a reference source of information.—*D.L.R.*

* * *

Callander's Surgical Anatomy. Third Edition. By Barry J. Anson and Walter G. Maddock. Published



Scene from "Oliver Twist"



CHARLES DICKENS
1812-1870

Psychoneurotic Men of Genius

Charles Dickens, the renowned British novelist, was subject to cyclic moods of pronounced depression characterized by intense nervous irritability and by the shedding of tears all day long. He was exceedingly sensitive to his own experiences as well as to the suffering of others.

In the great majority of psychoneurotics, there is no serious mental illness, but merely an emotional imbalance which often can be greatly improved by proper psychotherapeutic and sedative management. In the treatment of psychoneurosis, particularly agitated, depressed and anxiety states, Mebaral is preferred by many because it combines a high degree of sedative effectiveness — producing emotional stability — with a relative freedom from side effects such as languor and drowsiness. Patients usually become calmer, more cheerful and better adjusted to their surroundings without clouding of mental faculties.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

Average sedative dose:
Adults, 32 mg. to 0.1 Gm. (½ to 1½ grains) three or four times daily;
children, 16 to 32 mg. (¼ to ½ grain) three or four times daily.

Supplied in tablets of 32 mg., 0.1 Gm. and 0.2 Gm.

Mebaral®

tasteless daytime sedative

EFFECTIVE ANTIEPILEPTIC

Winthrop-Stearns INC. New York 18, N. Y. • Windsor, Ont.

Mebaral, trademark reg. U. S. & Canada, brand of mephobarbital

by W. B. Saunders Company, Philadelphia. 1074 pages, 929 illustrations.

This is a revised edition of surgical anatomy which retains the original pattern of presentation. Fundamental features of anatomy are stressed, not technical operative procedures. Additions from the current surgical literature have been added and correlated with pertinent basic anatomy. The section pertaining to the gall bladder and lung are extremely well presented. The excellent illustrations and format lend themselves to ease of understanding. This standard text well fits the need of specialists, students, or practitioners.—*C.A.H.*

* * *

Elementary Medical Statistics. By Donald Mainland. Published by W. B. Saunders Company, Philadelphia. 327 pages, 23 figures. Price $5.00.

The author aims his context at the medical student primarily, but his presentation is equally worthwhile for the investigator or the practicing physician who will read the reports of investigators.

The place of statistics in medicine is well established in the opening chapter. How to look at evidence is beautifully presented in the second chapter; the nine questions that the physician reading medical literature must apply and five rules for investigation are discussed.

This text does not suggest that all medical observations be statistically significant, but insists that observations which are not significant be presented in such terms that a significance is not implied.

Precise methods of determining confidence limits and of properly evaluating observations are clearly presented with numerous examples. The book is one which must be read and then kept available for reference.—*A.D.M.*

Evaluation of Prepayment Plans

An evaluation of Blue Cross and Blue Shield plans was presented recently by Dr. Anthony J. J. Rourke, president of the American Hospital Association, in an address given before representatives of the two plans at their annual conference. Dr. Rourke's outline listed the following problems as solved or greatly helped by the prepayment plans:

1. They have furnished the much needed and most effective public relations tool in history.
2. They have greatly enhanced the financial stability of our hospitals.
3. They have directly or indirectly focused our attention on cost because of improved accounting methods.
4. They have made it possible to vastly improve the remuneration and personnel policies for hospital workers.
5. They have contributed to the health education of 80,000,000 people by concentrating their attention on hospital cost—not during illness, but during health.
6. They have made earlier hospital admission possible.

Dr. Rourke also listed the problems which have been created or have grown:

1. They have caused a serious decrease in hospital patients on teaching services and, if the present trend continues, may cause the disappearance of the traditional teaching service.
2. They have in some ways—and inadvertently—been the cause of abuse of hospitalization and diagnostic facilities.
3. They have shown us the urgent need for rapid diagnostic service for private patients on an ambulatory basis.
4. They have changed the architectural planning of our hospital structure because of the shift to more private rooms and fewer wards.
5. They have created some tensions between hospitals and medical staffs, but in turn have shown a pattern of cooperative work between doctors, hospitals and plans which had no precedent.
6. They have created the problems bound to occur with third party payments as to methods and amounts.
7. They have allowed us to define and separate the costs of caring for the medically indigent and have indirectly made it obvious to us that local governments must assume their just responsibility for financing such care.

From the standpoint of control, the most important characteristic of tuberculosis is the fact that it is communicable. In other communicable diseases like diphtheria, for example, for which we have dependable methods of immunization and effective therapeutic agents, the problem is entirely different and much more susceptible to control efforts. In tuberculosis, however, this is not the case, and the only sure way we have of checking its spread from one person to another is by finding and isolating the disease until it is no longer a danger to others. *Robert J. Anderson, M.D., Medical Papers of the Annual Meeting of the Canadian Tuberculosis Association, May, 1951.*

The world's only plant expressly designed to produce an antibiotic by chemical synthesis was opened recently in Holland, Michigan, by Parke, Davis and Company.

"PREMARIN"®

Highly effective • Well tolerated • Imparts a feeling of well-being

"PREMARIN"

Most menopausal patients
experience striking relief
of symptoms with "Premarin."

"PREMARIN"

Estrogenic Substances (water-soluble)

"PREMARIN"



also known as Conjugated Estrogens (equine)

"PREMARIN"

5202 AYERST, McKENNA & HARRISON Limited • New York, N. Y. • Montreal, Canada



ABSTRACTS FROM CURRENT LITERATURE

Cow's Milk Allergy in Infants

Cow's Milk Allergy in Infants. By N. W. Clinic, Ann. All., 9, 195-203, Mar., 1951.

The authors report a clinical study of the symptoms of cow's milk allergy in 140 infants. Fourteen different symptom complexes were observed: eczema (more often the face), 59 cases (42 per cent); pylorospasm (persistent vomiters, spitters or "sour" babies), 54 cases (39 per cent); colic (severe excess gas not relieved by usual measures, 40 cases (29 per cent); very unhappy all the time (usually had several of the above syymptoms), 27 cases (20 per cent); diarrhea (severe and persistent), 33 cases, (24 per cent); large amount of mucus in the stools, eight cases; gross blood in the stools, six cases; croup and cough (repeated and frightening), 13 cases (nine per cent); choking and gagging and excessive mucus in the throat, 10 cases (seven per cent); "nose cold all the time" (stuffy, runny nose, hay fever), 12 cases (eight per cent); constipation, chronic and not relieved by usual measures, seven cases (five per cent); refuses milk entirely (anorexia); sneezing, frequent spells, 3 to 10 times, three cases; urticaria or angioedema, three cases; "toxemia" (apathetic, listless, cyanosis and collapse in varying degree), three cases.

These above symptoms stopped with changing to Mulsoy and recurred when put back on cow's milk.

These allergic manifestations usually began at two to four weeks.

In most instances marked improvement occurred when milk was withheld for only 48 hours. Approximately one out of 15 infants is allergic to cow's milk in some degree. Most of these babies outgrow their milk allergy by the third or fourth month.

Fifteen per cent of these infants were not able to tolerate cow's milk even by the end of the first year, without having some clinical symptoms.

Proper diagnosis and treatment of these initial allergic manifestations, as early as possible, may minimize or avoid serious allergic disease in later life.—*D.R.D.*

* * *

Carcinoma of the Colon

Carcinoma of the Colon. By Warren H. Cole, Postgrad. Med., 10:1, 35-41, July, 1951.

The author reviewed diagnostic criteria and then presented three illustrative cases with films. He emphasized the following facts:

1. Symptoms of this disease are insidious.
2. The lesion is less invasive than many tumors and the five year survival rate following resection is between 50 and 55 per cent.
3. The postoperative mortality rate at present is in the neighborhood of three or four per cent.
4. The earliest symptom is change in bowel habits, increasing constipation often changing to diarrhea and occasionally shifting back and forth.
5. Rectal bleeding is another common symptom and may be the first symptom.
6. Abdominal pain, often cramplike, is the third important manifestation.
7. Obstruction is more common in lesions on the left side.
8. Vomiting is characteristic by its absence though it is common to have vomiting every couple of days in complete obstruction.
9. Abdominal examination usually helps only a little; right sided lesions may present a mass; increased peristaltic sounds on auscultation form a more important sign than distention or visible peristalsis.
10. Proctoscopy is valuable.
11. X-ray studies may need to be made in oblique or lateral aspects; barium should not be forced in or given by mouth.
12. About half of the lesions in the colon and rectum are located distal to the rectosigmoid junction; of the other half, 18 per cent are in the descending, six per cent in the transverse and 12 per cent in the ascending colon.
13. Diverticulitis may produce a differential diagnostic problem, but on x-ray study such lesions usually involve a longer segment and diverticuli can be seen.—*P.W.M.*

* * *

Radiation Therapy in Pediatrics

The Role of Radiation Therapy in Pediatrics. By Paul H. Reitman, Arch. Ped., 68:6, 265-273, June, 1951.

The author believes many physicians fail to realize the scope of radiation therapy in pediatrics. He reviews a 12-months period of x-ray therapy at the Michael Reese hospital; 1728 patients were reviewed and of these 436 were under 15 years.

The diseases treated by irradiation fell into four main categories: traumatic or mechanical, inflammatory or infectious, metabolic or endocrine, and neoplastic, benign or malignant.

The traumatic or mechanical cases included strains, sprains, fractures, fibrositis, myositis, bursitis, arthritis, etc. The principal symptom was pain in which radiation therapy was of value. This group did not frequently need radiation therapy. One young boy with myositis calcificans received much relief from pain and showed a decrease in calcium deposits. Radiation therapy relieves pain through

today's health a must!

for your reception room



Physicians' Half-Price Rates

4 years	$4.00
3 years	3.25
1 year	1.50

AMERICAN MEDICAL ASSOCIATION
535 North Dearborn · Chicago 10, Illinois

Cook County Graduate School of Medicine
ANNOUNCES CONTINUOUS COURSES

SURGERY—Intensive Course in Surgical Technic, Two Weeks, starting June 16, August 4, August 18.
Surgical Technic, Surgical Anatomy & Clinical Surgery, Four Weeks, starting September 8, October 20.
Surgical Anatomy & Clinical Surgery, Two Weeks, starting June 16, September 22.
Surgery of Colon & Rectum, One Week, starting September 15, October 13.
Gallbladder Surgery, Ten Hours, starting June 16, October 20.
Basic Principles in General Surgery, Two Weeks, starting September 8.
General Surgery, One Week, starting October 6.
General Surgery, Two Weeks, starting October 6.
Breast & Thyroid Surgery, One Week, starting June 23.
Esophageal Surgery, One Week, starting June 23.
Thoracic Surgery, One Week, starting October 20.
Fractures & Traumatic Surgery, Two Weeks, starting June 16.

GYNECOLOGY—Intensive Course, Two Weeks, starting June 16.
Vaginal Approach to Pelvic Surgery, One Week, starting September 22, November 3.

OBSTETRICS—Intensive Course, Two Weeks, starting September 29, November 3.

PEDIATRICS—Informal Clinical Course every two weeks.

MEDICINE—Electrocardiography & Heart Disease, Two Weeks, starting July 14.
Hematology, One Week, starting June 16.
Gastroscopy & Gastroenterology, One Week Advanced Course, June 23.

UROLOGY—Intensive Course, Two Weeks, starting September 8.
Cystoscopy, Ten Days, starting every two weeks.

DERMATOLOGY—Intensive Course, Two Weeks, starting October 13.
Informal Clinical Course, every two weeks.

TEACHING FACULTY—ATTENDING STAFF OF COOK COUNTY HOSPITAL
Address: Registrar, 707 So. Wood St., Chicago 12, Ill.

It's Convenient to Buy Kanox

THERAPEUTIC OXYGEN AND ANESTHETIC GASES

Oxygen Therapy
Regulators and Equipment
Repair Service for
Regulators, Flowmeters
and Humidifiers



Nitrous Oxide
Ethylene
Carbon Dioxide
Helium
Oxygen
Cyclopropane

KANSAS OXYGEN, Inc.

Phone 6392 HUTCHINSON, KANSAS Box 551

vasodilation, with increased rate in removal of toxic products; also, some polymorphonuclear leukocytes sensitive to irradiation are destroyed, releasing proteolytic enzymes which dissolve dead tissue, thus more rapidly clearing debris from the lymph and blood vessels.

Secondly, diseases of infectious or inflammatory origin include cellulitis, furunculosis, sinusitis, otitis media, thrombophlebitis, pneumonitis, neuritis, gas gangrene, vernal catarrh, and many others. Radiation should not be used until it is evident other standard methods of treatment are inadequate. The author has been able to clear up unresolved pneumonitis, chronic otitis media, tuberculous adenitis and even tuberculous peritonitis with very small amounts of radiation. Good results were obtained in chronic pharyngitis, upper respiratory infections, eustachian tube deafness. Many patients were referred for irradiation of tonsils and adnoids, patients considered too young for surgery who had allergies or rheumatic heart disease. Others with recurrence of lymphoid tissue after surgery were successfully treated. Irradiation of the enlarged thymus was done only when compression of the trachea was demonstrated on roentgenograms. This treatment was very infrequently indicated. The dermatitis found in childhood is usually an inflammatory response to fungus, irritation or allergy, and such inflammations are aided by irradiation when indicated. Some of these are acne vulgaris, eczema, lupus vulgaris, dermophytosis, tinea capitis, etc.

The third group comprises diseases of metabolism, including the endocrine and other secretory glands. These included functional diseases of the thyroid, parathyroid, pituitary, ovary, adrenals, sweat glands, etc. Radiation causes decreased gland activity and secretion. The authors treated the lytic skull areas in a case of Hand-Schuller-Christian disease with complete reossification and relief of pain.

The fourth group is diseases of neoplastic origin, benign and malignant. Of the benign neoplastic lesions, vascular nevi were most commonly treated. Cavernous hemangioma responded best; port wine nevi gave poor response. Other benign tumors included warts. Best results in keloid were obtained by surgically removing the scar with postoperative irradiation.

In the treatment of malignancies, irradiation was the treatment of choice in blood dyscrasias and lymphoblastomas. It was used preoperatively in Wilms or neuroblastomas, also postoperatively at times.

It should be remembered that radiation therapy has a firm scientific foundation and, as in other forms of therapy, it has its indications and contraindications. It must be administered in such a manner by qualified specialists to achieve maximum improvement without effecting changes, local or general, detrimental to the patient.—*D.R.D.*

* * *

Blood Pressure in Infants

Flush Method for Blood Pressure Determinations in Infants (Newborn). By Goldring and Wohltmann. Jnl. Ped., 40:3, 285-289, Mar., 1952.

A visual method of determination of blood pressures in newborn infants is presented. A 2.5 cm. cuff is placed around the ankle or wrist in the usual manner and a piece of rubber sheeting or old rubber glove is wrapped snugly around the foot or hand, so that the blood is pressed from the extremity. The cuff is then inflated to a pressure slightly above the suspected systolic pressure, the rubber bandage is removed and the pressure slowly released from the cuff. The approximate pressure is the reading at which blood suddenly re-enters the foot or hand, causing a flush.

The authors believe that a difference greater than 20 mm. Hg. between the upper and lower extremities may be enough to warrant a diagnosis of coarctation in a suspected case. Higher reading is found in the arms.—*D.R.D.*

Five Hundred Specialists in Army

Five hundred officers now on active duty with the Army Medical Service have been certified as professional specialists, the Army Surgeon General announced recently. This number includes 466 physicians qualified in 19 medical specialties, 23 board-certified dentists, seven specialists in psychology and four in nutrition.

The increase is attributed to the Army's graduate professional training program and to the recall of reserve officers to active duty since the outbreak of the Korean conflict. Of the total number of medical specialists, 311 are in the regular Army and 148 are reserve or National Guard physicians on extended active duty. Seven are retired regular Army officers remaining on active duty.

Unlike the situation during World War II, many of the recently certified officers have obtained all their professional training and practice in the Army.

CLASSIFIED ADVERTISEMENTS

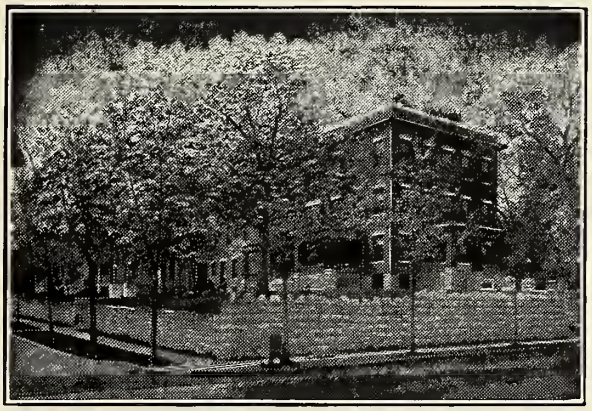
GENERAL PRACTITIONER AND SURGEON, age 32, married, category four, desires association, industrial contract with private practice privileges or location. Has own equipment. Write the Journal 7-52.

FOR SALE—Specialist's chair, E.E.N.T., W.E., with adjustable light (Beck's); ENT specialist's cabinet, W.E., 78 x 32, 5 drawers and 2 large compartments (Shanklin's); Yankauer compressed air and suction unit for ENT, W.E.; steel ENT revolving stool, W.E.; steel folding examining and operating table (Army); assortment of general surgical and ENT instruments. Retired. Write the Journal 6-52.

THE MAJOR CLINIC ASSOCIATION

3100 EUCLID AVENUE KANSAS CITY, MISSOURI

A Well Equipped Institution for the Nervous and Mental Diseases and Alcohol Drug and Tobacco Addictions



Beautiful Location Large, Well Shaded Grounds Spacious Porches, All Modern Methods for Restoring Patients to a Normal Condition

Elderly People Accepted — Special Rates

HERMON S. MAJOR, M.D.
Medical Director

HERMON S. MAJOR, JR.
Business Manager

Refresh...add zest to the hour



Medical and Surgical Supplies for Doctors of Medicine and Hospitals.

Munns Medical Supply Co.
512 Kansas Ave.
Topeka, Kansas

THE LATTIMORE-FINK LABORATORIES
Topeka El Dorado
Kansas

J. L. Lattimore, A.B., M.D., Pathologist
A. A. Fink, A.B., M.D., Pathologist
H. C. Ebendorf, M.T. Serologist
A. C. Keith, B.S., Chemist
L. W. Hull, A.B., Bacteriologist
Walter Norris, A.B., Chemist

Anatomical and Clinical Pathology

Containers Furnished Upon Request

Index to Advertisers

Abbott Laboratories VIII
Ames Company, Inc. VI
Ar-Ex Cosmetics, Inc. XVIII
Ayerst, McKenna and Harrison, Ltd. 319
Brown School XVI
Coca-Cola Company 323
Continental Casualty Company XIII
Cook County Graduate School of Medicine..... 321
Duncan Laboratories XV
Goetze Niemer Company XVIII
Hanicke, P. W., Manufacturing Company..... XVI
Isle, W. E., Company XVIII
Kansas Oxygen, Inc. 321
Lattimore-Fink Laboratories 324
Lederle Laboratories 309
Lilly, Eli and Company Facing XVIII
Major Clinic 323
Mead Johnson and Company Back Cover
Medical Protective Company XVIII
Merck and Company, Inc. XVII
Munns Medical Supply Company, Inc. 324
Neurological Hospital Association XVIII
Parke, Davis and Company.Inside front cover and III
Pfizer, Charles, and Company, Inc.....X, XI and 313
Physicians Casualty Association XIV
Producers Creamery Company XVI
Ralph Sanitarium XII
Rocky Mountain Cancer Conference V
Schering Corporation Inside back cover
Searle, G. D., and Company 305
Southwest Scientific Corporation 324
United Insurance Company 311
University of Kansas Medical Center XVIII
Upjohn Company VII
Wander Company 315
Winthrop-Stearns, Inc. 317
Woodcroft Hospital XIV
Wyeth, Inc. IX

Everything for the Laboratory

Southwest Scientific Corporation

LABORATORY SUPPLIES AND EQUIPMENT

122 South St. Francis Street

Phone 2-0582 Wichita, Kansas

THE JOURNAL
of the
KANSAS MEDICAL SOCIETY
Owned and Published by The Kansas Medical Society

Volume LIII JULY, 1952 No. 7

The Low Transverse Incision for Pelvic Operations

Melvin A. Rabe, M.D.
Leavenworth, Kansas

Although the classical method of opening the abdomen has been by means of a vertical incision, transverse abdominal incisions have been used intermittently since shortly before the turn of the century. This type of incision has become gradually more popular as the fundamental principles of abdominal stress have become better understood.

Historical Aspects

The first use of the transverse abdominal incision is difficult to accurately determine, but the following were some of the pioneers in its development.

The Germans, Pfannenstiel[1] in 1908, Sprengel[2] in 1910, and Bakes[3] in 1911 advocated various transverse incisions. Maylard[4] of Great Britain in 1907 and Moschowitz[5] of the United States in 1916 recommended this type of incision, and the late Fraser Gurd[6] of Canada has been one of its most enthusiastic proponents since he first used it in World War I to join entrance and exit wounds in soldiers suffering from gunshot wounds of the abdomen. In the last quarter century Bartlett and Bartlett,[7] Singleton,[8] Sloan,[9] Sanders,[10] and others have made important contributions toward popularizing this incision. More recently Cherney[11] has described a transverse supra-symphyseal incision for pelvic operations and Tollefson,[12] Johnson,[13] and Pettit[14] have endorsed a transverse incision for gynecological cases. At the present time many of the better surgeons in this country use this type of incision in preference to the vertical one for most operations. These include Wangensteen* of the University of Minnesota and Coller at the University of Michigan.

Anatomical Principles

The reluctance of earlier surgeons to make transverse incisions was probably dependent in part, at least, to their fear of sectioning the rectus muscle across its fibers, feeling as they did that this structure was important in the support of the anterior abdominal wall. They apparently were unconcerned with or unaware of the fact that when they made vertical incisions through the sheath of the rectus they were cutting transversely across the tendinous insertions of the oblique muscles which are actually much more important in furnishing the support of the abdominal wall than is the rectus. These muscles are the ones that are subject to stress when any effort involving intra-abdominal pressures is involved, such as sneezing, coughing, vomiting, etc.

Actually, the part the rectus muscle plays in the support of anterior abdominal wall has been highly over-rated in the past and is probably quite negligible. Its main function seems to be to aid in bending, whereas the support of the anterior abdominal wall is more properly the function of the oblique muscles and their aponeuroses. Its section, moreover, does not impair it appreciably since it is adherent to its anterior sheath at several points by the linea transversae. Transverse incisions tend to split the fibers of the oblique muscles and their tendons rather than transect them so that abdominal stress following this type of incision tends to pull the wound together rather than separate it. The nerve supply to the abdominal wall runs in a generally transverse direction and can usually be preserved with a transverse incision. Transverse incisions do however cut across the blood supply of the rectus muscle, and although this may be a source of annoyance to the surgeon, it is of no other importance.

Advantages and Disadvantages of the Transverse Incision

Despite the fact that the vertical incision has been successfully used since the beginning of abdominal surgery, the transverse incision possesses advantages peculiar to it which may be inferred from the foregoing resume of its anatomical principles.

The transverse incision has been shown to be less subject to dehiscence and incisional hernia; it has

*It has come to the attention of the author, since the preparation of this article, that Wangensteen is now advocating a vertical midline incision with an extrapleural sternotomy for upper abdominal operations.

given less postoperative discomfort and its skin incision, being generally in the lines of skin cleavage, is much neater and more sightly. Its disadvantages are the increased time necessary for its fashioning and the fact that at times it does not offer as good exposure as a vertical wound. This latter objection does not apply to the low abdominal transverse incision.

The Transverse Approach to the Pelvis

Although the transverse incision has become increasingly popular, its use in pelvic operations does not seem to be so widespread in spite of the fact that here it is free of the disadvantages sometimes present when used elsewhere. Many general surgeons who use the transverse incision in the upper abdomen prefer the vertical approach in the lower abdomen, as do most gynecologists. Their reasons undoubtedly include the following: 1. it is easy and quick to make and close; 2. it offers satisfactory exposure, especially when used with a self-retaining retractor; 3. dehiscence of lower abdominal incisions occurs less frequently than those of the upper abdomen; 4. it has stood the test of time.

Nevertheless, the transverse incision when applied to surgery of the pelvis has unique advantages. The exposure obtained from this approach is superlative and can be maintained without the use of retractors. The incision across the rectus is near its tendinous insertion and is practically avascular. The patient's postoperative course is remarkably pain-free, which we attribute in part to the fact that he has not been subjected to the trauma of retractors. The skin incision, being in the line of skin cleavage and near the pubic hair line, is practically invisible. This latter point may seem unimportant but many patients, especially women, feel rightly or wrongly that the type of scar reflects to some degree the skill of the surgeon. Certainly a neat, linear and inconspicuous scar offers both the patient and the surgeon some pardonable pride in his acomplishment.

Technic

This incision should not be confused with the Pfannenstiel incision which is quite similar except for one cardinal difference. The Pfannenstiel incision does not transect the rectus and thereby loses the prime objective inherent in any satisfactory incision, that of adequate exposure. The incision we use is essentially the same as that described by Cherney, and differs in only one rather unimportant respect. The Cherney incision entails suture of the sectioned rectus back to its tendinous insertion in closing the wound. This procedure we have found to be a rather difficult and, we believe, unnecessary step.

A curving transverse skin incision is made through the upper pubic hair line about two finger-breadths above the pubic bones extending a varying distance laterally towards the anterior superior iliac spines. The outer limits of the wound may be four finger-breadths from the anterior spine for such operations as hysterectomy or retropubic prostatectomy and may extend to the spines for such procedures as anterior resection of the colon or abdomino-perineal resection. The anterior sheath of the rectus is then sectioned and the oblique muscles split laterally. The rectus is picked up by inserting a finger beneath it. This muscle together with the pyramidalis, if present, is sectioned at the same level. Practically no bleeding is encountered from the rectus and no clamping is usually necessary. The recurrent epigastric vessels are fairly well lateral and are usually not disturbed except for such operations as abdomino-perineal resection where it may be necessary to ligate them bilaterally. As soon as the rectus is cut it retracts sharply, pulling the anterior sheath superiorly and leaving a gaping wound which requires no retraction. If the operation is to be extraperitoneal, such as retropubic prostatectomy, the transversalis fascia is opened and the peritoneum reflected. For transperitoneal procedures the transversalis fascia and peritoneum are opened together, initially, at the lateral or superior aspect of the wound to avoid the bladder. The peritoneal incision then skirts the superior aspect of the bladder.

In abdomino-perineal resection, the colostomy may be conveniently implanted in the lateral angle of the wound. The wound is closed with a running 0 chromic suture in the peritoneum and interrupted 000 multistrand or 34 monofilament stainless steel wire in the anterior sheath and oblique muscles. The external and internal oblique muscles are usually closed in a single layer. The rectus muscle is not sutured. The skin is closed with a continuous, vertical mattress suture which is removed in five days to obviate stitch marks.

The closure of the anterior sheath often offers



Figure 1. Low transverse incision showing gaping of the wound following transection of the rectus muscles.



Figure 2. Scar of transverse incision for panhysterectomy made beneath the fatty apron of an obese patient.



Figure 3. Colostomy implanted in the lateral angle of low transverse incision for abdomino-perineal resection.

some difficulty because of the tension exerted by the retracted rectus muscle. This can be mitigated by breaking the operating table so that the patient lies in a somewhat "jackknifed" position. The extra time consumed in the closure of this wound is more than compensated for by the expeditious accomplishment of the remainder of the operation because of the better exposure. Retropubic prostatectomy and ureterolithotomy have been satisfactorily performed extraperitoneally and anterior resection of the colon, abdomino-perineal resection and panhysterectomy transperitoneally through this incision. The operation of panhysterectomy has especially been facilitated for us by this approach. We have had no dehiscence or incisional hernias and our only complications have been painful wire sutures which required removal in two patients.

Summary

The historical background, anatomical principles and advantages of transverse incisions have been briefly reviewed and the technic of the low transverse approach to the pelvis has been described. This latter incision has not attained the popularity of transverse incisions in the upper abdomen but its wider employment is advocated since it offers an unexcelled exposure of the pelvic viscera which cannot be gained as easily by any other approach.

Bibliography

1. Pfannenstiel, J.: Abdominal and vaginal celiotomy. Tr. Am. Gynec. Soc., Phila., 33:76, 1908.
2. Sprengel, B.: Kritische Betrachtungen über Baudeckennaht und Bauchschnitt (Critical observations concerning suture of the abdominal walls and abdominal incision) Arch. f. klin. Chir., 92:537, 1910.
3. Bakes, J.: Erfahrungen mit den Sprengel'schen Bauchquerschnitten und ein neuer platischer Querschnitt auf die Niere (Experiences with Sprengel's abdominal transverse incisions and a new plastic transverse incision over the kidney) Arch. f. klin. Chir., 96:05, 1911.
4. Maylard, A. E.: Direction of abdominal incisions. Brit. Med. Jour., 2:895, 1907.
5. Moschowitz, A. V.: Transverse incisions in upper abdomen. Ann. Surg. 64:268, 1916.
6. Gurd, Fraser: Anatomical principles involved in abdominal incisions. The Surgical Clinic of North America, 71-284, April, 1945.
Gurd, Fraser: Abdominal incisions, surgical treatment. Bancroft & Wade. J. P. Lippincott Co., 1947.
7. Bartlett, W., and Bartlett, W., Jr.: The transverse incision in the upper abdomen. Surg., Gyn., and Obst., 57:93, 1933.
8. Singleton, A. O.: Improvement in the management of upper abdominal operations, stressing the advantages of an anatomical incision. South. Med. J., 24:201, 1931.
9. Sloan, E. P.: New upper abdominal incisions. Surg., Gyn., and Obst., 45:678, 1927.
10. Sanders, R. L.: Transverse incision in the upper abdomen. Annals of Surgery, 104:74, 1936.
11. Cherney, L. S.: A modified transverse incision for low abdominal operation. Surg., Gyn., and Obst., 72:92, 1941.
12. Tollefson, D. G.: Transverse abdominal incisions in obstetrics and gynecology. West. Jour. Surg., Obst., and Gyn., 58:308, 1950.
13. Johnson, C. Gordon: Low transverse abdominal incision in gynecological surgery. Bull. Tulane Univ. Med. Fac., 10:107, 1951.
14. Pettit, V. A.: Method of wound closure in transverse abdominal incisions. Trans. Pac. Coast Soc. of Obst. and Gyn., 13:107, 1943.

CHANGE OF ADDRESS

Please notify the Kansas Medical Society of any changes in address.

Help keep the mailing list up to date.

Needle Biopsy of the Liver as an Aid in the Diagnosis of Malignant Tumors*

Robert T. Cotton, M.D., and Samuel Zelman, M.D.**
Topeka, Kansas

The detection of malignant disease within the body often is difficult and, only too frequently, is time consuming, requiring the utilization of many diagnostic procedures. Although the physician must always be alert to the recognition of the malignant process in its early and potentially curable stage, it would seem equally good medical practice to spare the patient with widespread, incurable cancer the discomfiture of unnecessary surgery, or even the numerous investigations often employed in establishing a diagnosis.

A recent paper[1] calls attention to the potential helpfulness of sternal marrow biopsy in demonstrating the presence of metastatic tumors. In our hands, needle biopsy of the liver has similarly proven a valuable aid in the confirmation of a clinical impression of disseminated malignant disease and in the establishment of an unequivocal diagnosis of metastatic malignancy in more complex cases in which the nature of the illness was far from obvious. Occasionally, the type and the probable primary site of the tumor have been indicated. When the liver was grossly nodular, an attempt was always made to biopsy a nodule, but otherwise a random specimen was depended upon.

During the four years in which we have employed the technique of liver biopsy, nine cases of malignant tumor have been discovered, one of these being primary in the liver. Six cases with negative biopsies were later shown at autopsy to have malignant disease, but without liver metastases. Three cases with biopsies negative for carcinoma were later shown at autopsy to have widespread malignancy with liver involvement. Of these three cases, one had cirrhosis of the liver, diagnosed by biopsy, but showed, in addition, multiple foci of primary carcinoma of the liver. Another had carcinoma of the pancreas with local extension and peritoneal carcinosis, portal space invasion and small tumor nodules in the liver capsule. The third, a case of abdominal carcinomatosis of undetermined primary site, showed no gross tumor nodules in the liver, but exhibited dense neoplastic tissue about the portal vein and invading the portal spaces.

It is obvious that needle biopsy must almost surely fail to demonstrate sparsely scattered metastases. Nevertheless, in a liver grossly enlarged by tumor, the chance for success is reasonably good. We have also been impressed with the relative painlessness and benignity of the procedure, having encountered no serious complications in a total of over 400 biopsies performed for various indications.

The nine cases in which malignant tumors in the liver were revealed by liver biopsy are detailed in order to illustrate the range of usefulness of the procedure.

Case 1. A 54-year-old white male had noted mild epigastric distress and progressive weakness for six months and a sensation of abdominal pressure for two weeks. He was slightly under-nourished and exhibited a large, hard, epigastric mass shown by

*Presented at the Kansas Regional Meeting, American College of Physicians, Emporia, March 21, 1952.

**From the Medical Service, Winter Veterans Administration Hospital, Topeka.

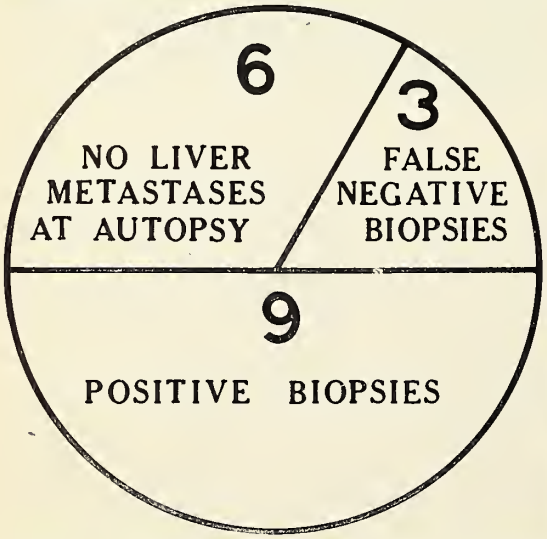


Figure 1. Results of needle biopsy of the liver in 18 cases of proven malignant disease.

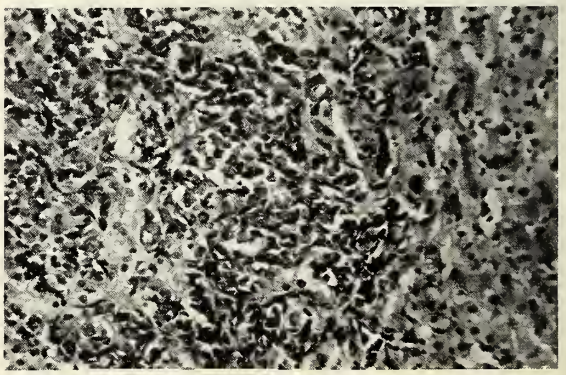


Figure 2, Case 1. Metastatic carcinoma. Primary in bronchus. Normal liver on right. Tumor nodule on left.

x-ray to be the left lobe of the liver. The sedimentation rate was elevated. X-ray of the chest revealed a tumor in the right hilar area. Needle biopsy of the liver revealed carcinoma of undetermined primary site (Figure 2). Death occurred one month later and, at autopsy, a carcinoma of the right bronchus with metastasis to the liver was found.

Comment: Needle biopsy did not indicate the primary site of the tumor but, by establishing the diagnosis, obviated further discomforting diagnostic procedures.

Case 2. A 47-year-old white male had noted pain in the right chest and fatigability for four months and productive cough and slight hemoptysis for two weeks. He had received penicillin therapy for "pneumonia" with slight benefit. Findings included a temperature of 100° F. and a few medium rales at the apex of the right lung. A blood count showed 10,300 leukocytes per cu. mm. with 72 per cent granulocytes. The sedimentation rate was 38 mm. per hour. X-ray revealed an infiltration in the upper lobe of the right lung. The cough and fever subsided with additional penicillin, but serial x-ray films showed a steady progression of the pulmonary infiltration.

During his second week in the hospital the patient developed pain radiating from the left buttock into the thigh. This was associated with loss of the left knee jerk. Spinal fluid examination showed an increase in protein to 106 mg. per cent. Shortly thereafter, the liver and spleen became grossly enlarged. Needle biopsy of a palpable node on the surface of the liver revealed metastatic carcinoma (Figure 3). The patient failed rapidly and expired,

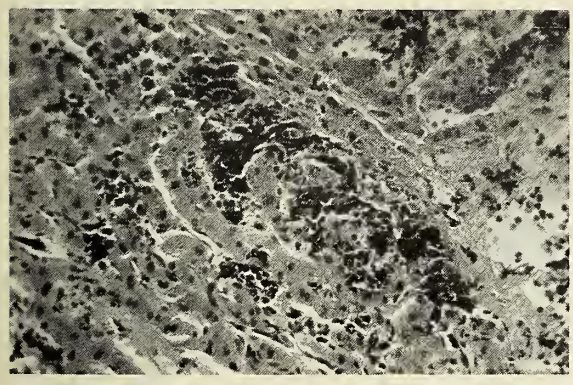


Figure 3, Case 2. Metastatic oat cell carcinoma of bronchus.

with purpura as the terminal event. Autopsy showed primary carcinoma of the right upper lobe bronchus with compression of the superior vena cava, hemorrhage into the peritoneal cavity and metastases to the liver, lymph nodes, spleen, left suprarenal, thoracic spine, dura and spinal canal.

Comment: Needle biopsy of a palpable liver nodule established a diagnosis of metastatic carcinoma, thus adding support to the clinical impression of primary carcinoma of bronchus with metastases to abdominal viscera and spine.

Case 3. A 54-year-old white male physical therapist complained of epigastric and right upper quadrant pain, fullness after meals, anorexia, weakness and a weight loss of 15 pounds, all of three months' duration, and bloating and eructation of one month's duration. He had been hospitalized 1½ years previously for treatment of "biliary dyskinesia." Physical examination revealed a hard 2.5 x 1.0 cm. lymph node in the left supraclavicular fossa and a large, hard, nodular liver extending into the epigastrium. A urine specimen contained 10-12 leukocytes, 3-4 hyalin and granular casts and 55-60 erythrocytes per high power field. The prothrombin time was 83 per cent of normal. Serum proteins were 6.0 gm. per cent, with 3.4 gm. per cent albumin and 2.6 gm. per cent globulin. The one minute direct reacting serum bilirubin was 4.3 mg. per cent and the indirect fraction was 6.2 mg. per cent. Gall bladder x-rays showed no visualization with dye. A gastrointestinal x-ray series revealed a tumor involving the distal third of the stomach. Needle biopsy of the liver showed anaplastic adenocarcinoma (Figure 4),

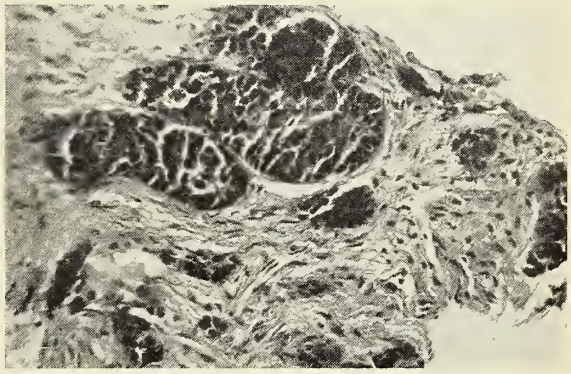


Figure 4, Case 3. Metastatic adenocarcinoma. Primary in stomach. Clusters of tumor cells surrounded by fibrous tissue.

and lymph node biopsy showed metastatic carcinoma of undetermined primary site.

A diagnosis of gastric carcinoma with metastases to liver and lymph nodes was made. Palliative gastroenterostomy was performed. Postoperatively, the patient developed biliary tract obstruction, was unable to retain nourishment and failed rapidly. Preterminally he had a number of left-sided Jacksonian seizures. Autopsy revealed carcinoma of the stomach with metastases to the liver, lymph nodes, suprarenals, left kidney pelvis and brain.

Comment: The needle biopsy of the liver supplemented the lymph node biopsy in revealing the presence of an inoperable tumor. Unfortunately, palliative surgery was necessary.

Case 4. A 44-year-old white male mechanic complained of indigestion, variable appetite with oc-

casional vomiting, dull pain and fullness in the epigastrium, pruritus, dark urine, progressive weakness and the recent discovery of a hard knot in the upper abdomen. His earliest symptom dated back two months. Examination revealed slight icterus, a palpable spleen and hepatomegaly, with a stony hard, nodular epigastric mass which could not be separated from the liver. The sedimentation rate was 38 mm. per hour. Laboratory studies showed marked impairment of liver function. Needle biopsy of the epigastric mass was diagnosed as metastatic carcinoma (Figure 5). The patient steadily deteriorated, with progressive icterus and wasting, and died in coma. Autopsy showed primary carcinoma of the liver with obstruction of the common bile duct by carcinomatous lymph nodes.

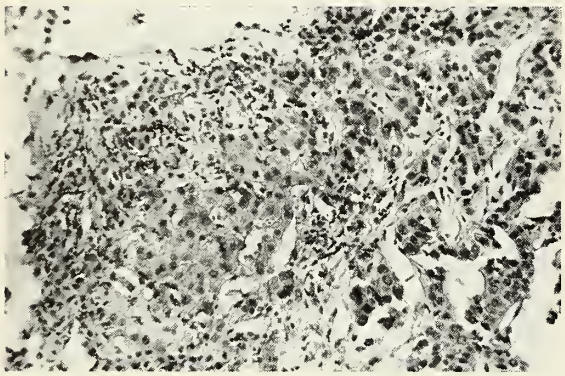


Figure 5, Case 4. Edge of primary carcinoma of liver. Nuclei are larger and darker than those in the adjoining liver tissue on the left.

Comment: A malignant process involving the liver was suspected clinically, but needle biopsy established the diagnosis and perhaps avoided unnecessary surgery. Also, it eliminated the need for further diagnostic procedures.

Case 5. A 51-year-old white male carpenter complained of intermittent pain in the right upper chest, right shoulder and arm, numbness and tingling of the fingers of the right hand, progressive generalized weakness and a 20-pound weight loss, all of four months' duration. He exhibited general asthenia, a right-sided inspiratory lag, coarse rales at both lung bases, weakness and diffuse sensory loss in the right arm, a markedly enlarged nodular liver, dilatation of abdominal parietal veins, with filling in an upward direction, shotty axillary lymph nodes and a large, solitary right supraclavicular lymph node. The sedimentation rate was 30 mm. per hour. X-ray showed enlarged right hilar lymph nodes. The serum alkaline phosphatase was 12.6 Bodansky units. Both biopsy of the supraclavicular lymph node and needle biopsy of the liver (Figure 6) revealed metastatic adenocarcinoma of the anaplastic type seen in "oat cell" carcinoma of bronchus. A diagnosis was made of primary carcinoma of the right bronchus with widespread metastases involving the brachial plexus, hilar lymph nodes and liver. The patient obtained some relief of pain following irradiation of the right brachial plexus and was transferred to another hospital for further therapy

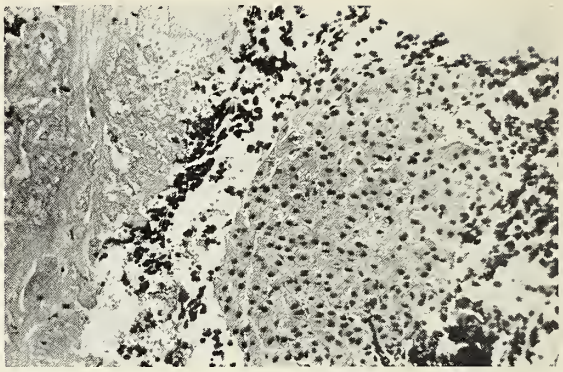


Figure 6, Case 5. Widely necrotic tumor, probably metastatic from oat cell carcinoma of bronchus.

Comment: Needle biopsy of the liver supplemented the lymph node biopsy in proving widespread metastatic carcinoma and in revealing the nature and probable primary site of the tumor as well. Although lymph node biopsy alone would have sufficed in this case, the positive result of the liver biopsy suggests its usefulness in similar cases not presenting an available node for biopsy.

Case 6. A 47-year-old white electrician, who had had an obstructive "growth" in the colon excised 18 months before, returned because of constant tiredness, chills and fever and a 30-pound weight loss, all noted over a nine-months period. Examination revealed generalized wasting, a protuberant abdomen and a markedly enlarged, hard, slightly nodular liver extending across the entire upper abdomen. The sedimentation rate was 36 mm. per hour. Needle biopsy of the liver showed metastatic adenocarcinoma (Figure 7). The patient was discharged on symptomatic therapy.



Figure 7, Case 6. Metastatic adenocarcinoma. Primary in colon.

Comment: Here again, needle biopsy established the presence of an inoperable intra-abdominal malignancy, thus confirming the clinical impression and perhaps sparing the patient additional surgery.

Case 7. A 54-year-old white male farmer had noted anorexia, nausea, vomiting, right upper quadrant pain, generalized weakness and weight loss over a period of three months. One and one-half years before he had had a small melanosarcoma excised from the chin, with subsequent x-ray therapy and two operations for removal of metastatic cervical lymph nodes. Examination revealed general wasting, a solitary, hard lymph node in the left posterior cervical triangle, and a large, hard, nodular mass filling the epigastrium and right upper quadrant. The sedimentation rate was 26 mm. per hour. Needle biopsy of the abdominal mass showed liver tissue invaded by metastatic malignant melanoma (Figure 8). The

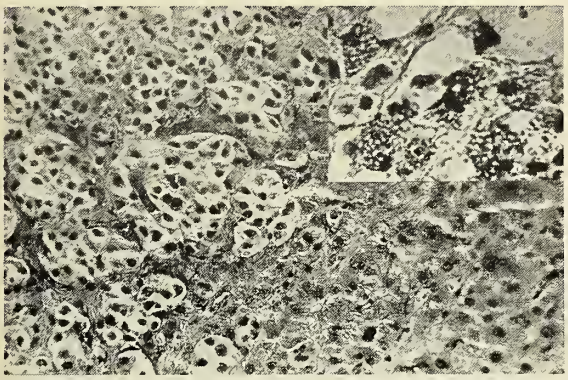


Figure 8, Case 7. Malignant melanoma. Primary in skin. Liver tissue on right and tumor on left. These tumor cells are not pigmented. Inset is a high power view of another area showing melanin granules in the cytoplasm of the tumor cells.

patient subsequently expired, but autopsy permission was not granted.

Comment: Although the clinical data were almost overwhelmingly in favor of invasion of the liver by malignant tumor, needle biopsy established the fact unequivocally and, in addition, revealed the character of the growth.

Case 8. A 58-year old white male dentist had complained of vague anorexia and back pain for one year and, during the five months preceding admission, suffered two attacks of spontaneous thrombophlebitis of leg veins complicated by two episodes of pulmonary infarction. Examination revealed moderate wasting, tachypnea, a weak, rapid pulse, distant heart sounds and a cool right leg. The prostate was moderately enlarged, and the anterior rectal wall above the gland felt indurated. The patient's clinical course was complicated by a myocardial infarction with cardiac decompensation, bladder neck obstruction requiring cystostomy, progressive anemia, recurrent thrombophlebitis, and a progressive mental confusion, all of which combined to prevent an exhaustive clinical evaluation. During the sixth week of hospitalization the hard, nodular liver was palpable for the first time. Bromsulfalein retention was 33 per cent in 45 minutes, but all other liver function tests were normal. Needle biopsy of the liver revealed severe degenerative parenchymal changes and metastatic adenocarcinoma (Figure 9). The patient expired soon thereafter,

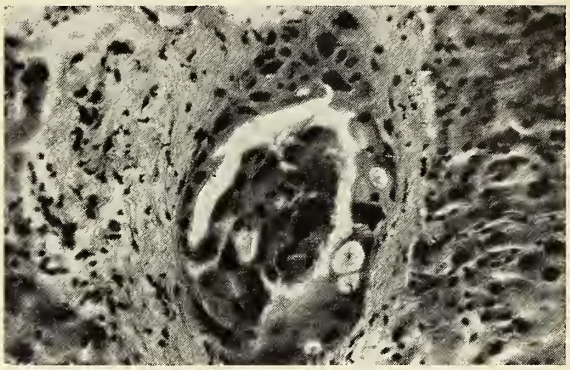


Figure 9, Case 8. Metastatic adenocarcinoma in a portal space. Primary in pancreas. Note large droplets of mucus in several cells and large hyperchromatic nuclei.

and autopsy showed carcinoma of the tail of the pancreas with extensive metastases throughout the abdomen and into the peri-rectal tissues.

Comment: Liver biopsy demonstrated a carcinomatous process as the basic etiology in an unusually baffling and complex case.

Case 9. A 55-year-old white male had been receiving liver extract, iron and vitamin B-12 for anemia for two years and had noted tiredness for three or four months and epigastric soreness for three weeks. Examination revealed a large, firm, nodular, moderately tender liver extending eight cm. below the costal margin, numerous spider nevi on the chest and shoulders and small, hard, movable lymph nodes in both axillae. A blood count revealed 4.8 million erythrocytes with 13.8 gm. of hemoglobin. The sedimentation rate was 22 mm. per hour. The bromsulfalein retention was 17 per cent in 45 minutes and the serum alkaline phosphatase was 16.2 Bodansky units; other liver function studies were within normal limits. A chest x-ray showed a large cluster of lymph nodes at the left hilus and a round density 15 mm. in diameter in the upper lobe of the left lung at the level of the second anterior interspace. Lung markings between this

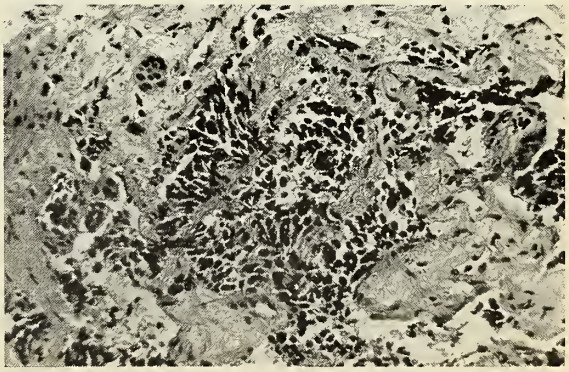


Figure 10, Case 9. Metastatic carcinoma. Primary in bronchus.

density and the hilus were conspicuous. X-ray studies showed no concentration of dye in the gallbladder and no abnormalities of the entire gastrointestinal tract. Needle biopsy of the liver showed metastatic carcinoma of undetermined origin (Figure 10). The patient's nutritional status gradually deteriorated, with eventual hypoproteinemia and peripheral edema. Jaundice appeared, and death occurred soon thereafter from inanition.

Autopsy revealed a primary carcinoma of the left upper lobe bronchus and a 6500 gm. liver which was largely replaced by nodular tumor metastases.

Comment: Needle biopsy of the liver promptly established the diagnosis of metastatic malignancy, although failing to reveal the site of origin.

Summary

Of 18 cases of malignant disease subjected to needle biopsy of the liver during life, nine were diagnosed by the biopsy. Of the remaining cases, six had no liver metastases at autopsy, and the other three showed only small or localized metastases to that organ. We conclude that needle biopsy of the liver will reveal the presence of malignant tumor with rewarding frequency, particularly if the liver is enlarged.

Of the nine positive needle biopsies, eight showed metastatic tumors and one a primary liver cell carcinoma. Of the eight cases of metastatic malignancy, the needle biopsies in two allowed recognition of the type and probable origin of the primary growth.

In two cases, one a particularly baffling diagnostic problem, the needle biopsy of the liver was the only definite evidence of a malignant process within the body.

Bibliography

1. Durkee, W. R., and Wilson, S. J.: Bone Marrow Biopsy as an Aid in the Diganosis of Metastatic Malignancy. Jr. Kan. Med. Soc. 52:361-366 (Aug.) 1951.

Cardiac Arrest: Its Diagnosis, Etiology and Treatment*

Paul H. Lorhan, M.D., and W. E. Swartz, B.A.

Kansas City, Kansas

The catastrophe of sudden circulatory arrest in the operating room is an emergency which will confront almost every surgeon at least once during his career. The active anesthetist will probably see many times this number of cases. It has been stated that a busy surgical clinic may expect approximately two cases a year.[1]

By circulatory arrest this paper connotes the sudden appearance during anesthetic administration and/or surgical procedures of cardiac arrest. The term cardiac arrest may be interpreted in one of two ways:

1. That condition wherein there is the sudden onset of complete asystole.

2. That condition wherein there is an occurrence of ventricular fibrillation.

We have recently had an occasion to observe the former condition in a patient at the University of Kansas Medical Center.

H. A., a 75-year-old white male, was admitted to the University of Kansas Medical Center May 3, 1951, and expired May 9, 1951. His chief complaint upon admission was slight exertional dyspnea, loss of weight, and fatiguability. The onset of this condition had occurred approximately seven months previously, at which time he first noted the minimal exertional dyspnea, which also occurred occasionally during rest. Associated with this dyspnea there had been a minimally productive cough, and an episode of moderate hemoptysis approximately four weeks prior to admission.

Past history revealed a marked allergy to penicillin. In December, 1950, he was a patient at the medical center for treatment of renal disease. At this time pyelograms revealed a non-functioning left kidney. An important finding was a mass in the left hilar region which was discovered on routine roentgenographic studies. The patient had been told that this mass should be investigated and possibly removed. He refused surgical intervention. Thereafter he was followed with monthly films. The mass continued to increase in size; consequently, he returned to the out-patient clinic during the latter part of April. Repeat films revealed a three-fold increase in the size of the mass since the discovery. The patient now agreed to surgical exploration and/or removal.

Physical examination revealed a well nourished, well developed, well muscled, white male who appeared younger than the stated age, who was in no acute or chronic distress. Blood pressure was 150/80 with a pulse rate of 80. He was moderately dyspneic with a respiratory rate of 28. There was paravertebral dullness on the left posteriorly, dullness anteriorly more marked in the region of relative cardiac dullness. Electrocardiograms showed an occasional ventricular prematurity (Figure 1).

Laboratory studies were well within normal limits.

*From the Department of Anesthesiology, University of Kansas Medical Center, Kansas City, Kansas.

X-ray findings showed a mass, lobulated in structure and located in the left hilar region, which extended out along the cardiac margins. The patient was considered a fair cardiac risk in view of his age, probable arteriosclerotic changes, and decreased pulmonary function due to the impinging mass. The diagnosis was felt to be primary bronchiogenic carcinoma. Surgical removal was considered the only hope of cure or palliation of the condition.

Surgery was performed the morning of May 7, 1951. Premedication consisted of phenobarbital grains ½, Demerol 75 mg. and atropine sulfate grains 1/150. Induction and intubation were accomplished without difficulty by using one mg. of decamethonium bromide (syncurine) and 10 cc. of 2.5 per cent solution of pentothal sodium. The patient was placed in position for a left pneumonectomy. A fluctuation of blood pressure appeared and persisted throughout the operation; however, this was never extreme and did not vary over 15-30 millimeters of mercury. Anesthetic agents were nitrous oxide, oxygen, and pentothal sodium.

A left radical pneumonectomy was carried out with an intrapericardial approach to the major pulmonary vessels. The surgical opening in the pericardium overlying the right atrium was about five centimeters in diameter. The operation continued without event until the pulmonary artery was dissected free and manipulated prior to ligation. There was a noted incidence of a number of ventricular prematurities at this time, and this continued until the chest was closed. Whole blood, 500 cc., was administered; the blood loss did not appear to be in excess. The pericardium was not closed in view of the possibility of a postoperative cardiac tamponade. The chest was closed in the usual fashion with establishment of negative pressure by the suction technique.

When an attempt was made to turn the patient to the supine position, it was noted that the previously strong radial pulse had ceased, and simultaneously the patient was having gasping respiratory efforts and becoming cyanotic. An endotracheal tube was in place and positive pressure breathing with the bag, containing 100 per cent oxygen, was started immediately. The chest was re-opened within 45

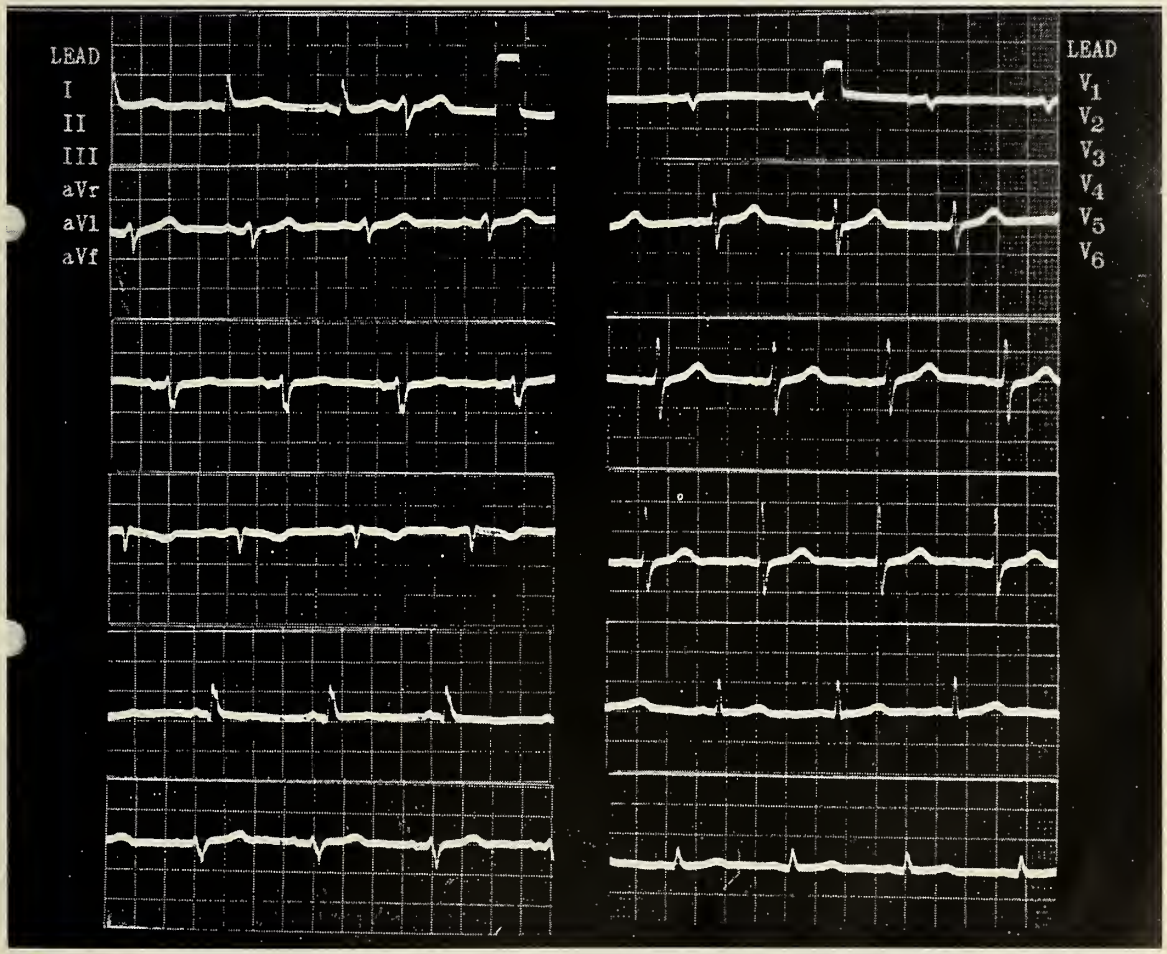


Figure 1. An occasional ventricular premature contraction is recorded as noted in Lead I. There is some notching of the QRS complex as noted particularly in Leads III and AVL, which may be associated with some conduction defect of the myocardium, non-specific in character. Otherwise the record is not unusual.

seconds after noting the absence of pulse and respiratory difficulty. Upon opening the chest the myocardium was observed as being in complete asystole. One cc. of 1:1000 adrenaline hydrochloride and five cc. (500 mg.) of procaineamide were injected into the right ventricle. Cardiac massage was instituted immediately. The patient had been without pulse for an interval of one minute. After approximately three minutes of vigorous massage, the myocardium began contracting weakly, and one minute later it appeared to be essentially normal in contractile properties.

At this time electrocardiographic tracings were taken (Figure 2). These tracings indicated a bundle branch block with second degree heart block.

The blood pressure stabilized at 90/40 with a pulse of 60. The chest was closed, and the patient remained in the lateral position for approximately two hours. The patient was then bronchoscoped and returned to the recovery room. Blood pressure at this time was 100/60 and the pulse rate was 90. Electrocardiograph tracings taken 24 hours after the previous gram were within normal limits.

The postoperative course was stormy. The patient did not recover complete equilibrium and sensorium, although he did clear slightly. He responded to loud noises and, seemingly, recognized attendants, but he was incoherent as to his previous work in the field of chemistry. His course continued downhill and in mid-afternoon on May 9, 1951, two days postoperatively, he suddenly sat up in bed and complained of marked dyspnea. There was emesis of several hundred cubic centimeters of frank blood-stained fluid. Respiration ceased.

Upon reviewing the case, the surgeons speculated as to the cause of the cardiac arrest. They surmised that the patient had become stabilized (cardio-circulatory system) to the lateral position of operation. When an attempt was made to turn him, a mechanical and reflex circulatory collapse (by torsion of the great vessels) was precipitated, causing a markedly diminished cardiac output with a resultant cardiac failure.

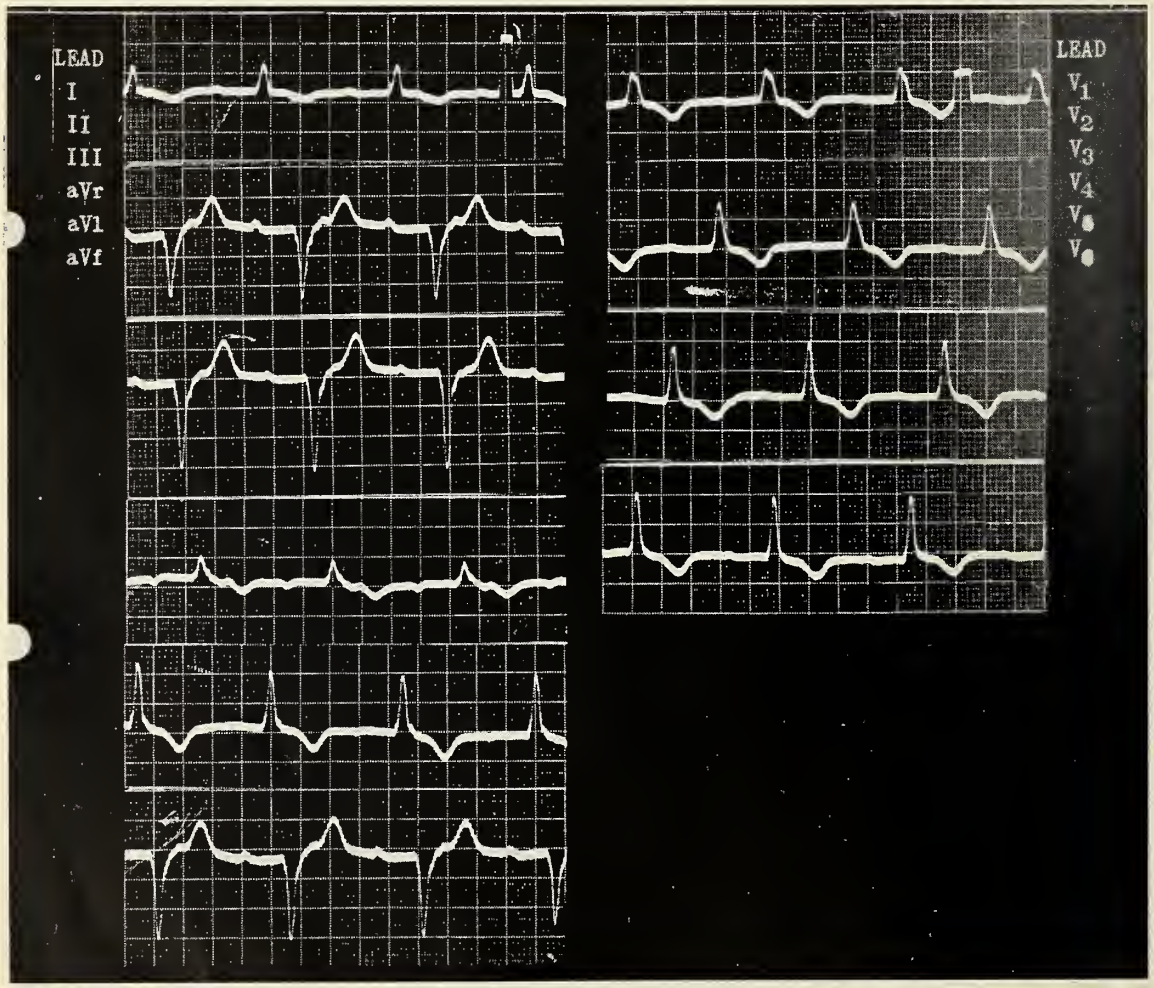


Figure 2. There is a bundle branch block with second degree heart block as manifested by P waves occurring with dropped beats. This is manifested in Lead II with the P. wave preceding the QRS complex by .28 seconds and a P wave falling just after the QRS complex, preceding the T wave.

Others (P. H. L.) of us thought that in view of the electrocardiograph tracings, the condition might have been a mechanical heart block. It is recalled that there was a defect in the pericardium overlying the right atrium and coronary sulcus, and that there seemed to be an over enthusiasm in the re-establishment of negative pressure in the left chest. These two factors, plus the turning of the patient to the supine position, might have precipitated a herniation of the right atrium, or portions thereof, through the pericardial defect, thus causing, in effect, a constrictive pericarditis with resulting mechanical heart block. Any attempt at a postulation of the actual etiology of the arrest in this patient would be pure speculation. The essence of this paper is to discuss the subject of cardiac arrest, its diagnosis, its possible etiology, and its treatment.

Diagnosis

It is recalled, by reviewing the case history of H. A., that the first indication of the possibility of a cardiac arrest was the evidence of the apparent respiratory difficulty and cyanosis. This condition occurred at the anesthesiologist's station. At approximately the same time, it was noted that there was a lack of pulsation of the radial artery.

It is found from perusal of the literature that the first indication of cardiac arrest is sudden, gasping, respiratory efforts, and that such a condition is usually first seen by the anesthetist. Simultaneously, there is also noted the absence of pulsation in the peripheral vessels. When the surgeon is instructed of the patient's condition, he notes the absence of pulsation in the large vessels, along with the lack of bleeding from the operative wound. The anesthetist likewise notes the absence of blood pressure. If there is sufficient hemoglobin, and especially if the patient is in the Trendelenberg position, a marked cyanosis will be observed. If the head should be in a higher position than the heart, an ashen pallor is evident rather than cyanosis. All of these factors constitute the diagnosis of cardiac arrest; however, any of these factors will necessitate prompt attention to the possibility of the condition and the prompt application of necessary palliative measures.

Etiology

The etiology of the condition is of the utmost importance if therapeutic measures are to be efficacious in the treatment of the condition. This is especially true concerning the use of pharmacologi-



Figure 3. The rhythm is sinus in origin. The record is essentially unchanged from the preoperative tracing.

cal agents and the institution of possible prophylactic measures. The etiology of the condition of cardiac arrest may be divided into several broad physiological principles.

I. Parasympathetic effects with resulting cardiac asystole.

A. *Vago-vagal Reflex.* This mechanism is probably of greatest importance as an etiological agent in the precipitation of cardiac arrest. In this mechanism there is thought to be a stimulation of various areas containing afferent fibers of plexi of vagal origin. The stimuli, it is postulated, may pass up the vagus nerves via afferent fibers, impinge on the dorso-lateral nucleus of the brain stem, and pass back down the vagal efferent tract to the heart. These impulses may cause a marked bradycardia or even cardiac arrest.

An example of this reflex may be seen in the work of Michael Johnstone.[2] He found that there was vagal inhibition of the heart during inhalation anesthesia. This inhibition, he felt, varied directly with the irritancy of the inhaled vapor. The anesthetic probably stimulates the sensory nerve endings in the lungs with resulting cardiac inhibition through the pulmo-cardiac reflexes. He found a profusion of arrhythmias during this work which offered further proof to the explanation of vago-vagal reflex. The various arrhythmias found were: sinus bradycardia, A-V nodal rhythm, partial and complete A-V block, A-V nodal bradycardia, ventricular standstill, and complete cardiac arrest. He also found that all of these possibilities were prone to occur in individuals of supposedly increased vagal tone, due either to organic lesions or to parasympathotonia. Many other examples of this reflex may be found anatomically, due possibly to the impingement of other efferent fibers on the vagal nuclei.

B. *Direct Vagal Stimulation.* This mechanism is somewhat more rare than the vago-vagal reflex. It consists merely of stimulation of the vagus nerve with resulting inhibiting impulses passing down the efferents to the receptors of the myocardium.

C. *Parasympathomimetic Effects of Barbiturates and Cyclopropane.* It has been found by various workers that the intravenous barbiturates and cyclopropane act synergistically in a parasympathomimetic fashion to cause cardiac inhibition by enhancing vagal tone.

II. Sympathetic effects with resulting ventricular fibrillation and, in essence, a functional cardiac arrest.

A. *Anesthetic Agents.* Various anesthetic agents have been found to cause increased sensitivity of the heart to epinephrine with resulting increased cardiac irritability which, combined with other stimuli, may cause ventricular fibrillation.

B. *Shock of Surgical Procedure.* The shock of prolonged and hazardous surgical procedures has been found to create an increased sensitivity of the myocardium to epinephrine with resulting effects as above (see II-A).

C. *Carotid Sinus Stimulation.* Incidents of carotid sinus stimulation have been postulated as causing ventricular fibrillation.

D. *Excitement.* Excitement creates an increased secretion of epinephrine which, coupled with an increased sensitivity of the myocardium to epinephrine, may precipitate ventricular fibrillation.

E. *Hypoxia.* Hypoxia is another condition in which there is an increased irritability of the myocardium and, with associated increases in epinephrine, may cause ventricular fibrillation.

III. Hypoxia.

A. *Acute Hypoxia.* Acute hypoxia not only may function in the method above, but may actively cause failure of the heart.

B. *Acute Hypoxia Coupled With Chronic Hypoxia.* Acute hypoxia is recognized as being extremely dangerous to the patient who has long suffered from chronic hypoxia with only the carotid sinus functioning as the regulator of respiration. When such acute hypoxia (with associated increases of carbon dioxide) occurs, it affects the carotid sinus and vasomotor center adversely, causing respiratory embarrassment, vasomotor collapse, and possible cardiac arrest.

IV. Shock.

The condition of typical primary shock due to blood loss and vasomotor collapse can decrease the cardiac output to such an extent that there is cardiac arrest (failure) due to the increased load on the heart.

V. Over-Dosage of Anesthetic Drugs or Abnormal Sensitivity to Anesthetic Agents.

A. *Ether.* Ether may cause vasomotor collapse and peripheral dilatation with resulting fall in blood pressure and possible cardiac arrest (failure).

B. *Ethyl Chloride and Chloroform.* These drugs actively depress the myocardium, and, in those patients of unstable cardiac reserve, they could feasibly cause cardiac arrest.

C. *Cyclopropane.* Cyclopropane not only increases the sensitivity of the myocardium to epinephrine but also actively slows the conduction time of the transmission system of the heart.

Treatment

After careful perusal of the foregoing classification of the possible etiologies of cardiac arrest, it will be seen that the treatment can be rational and

efficacious when based on a knowledge of the possible etiology. Treatment may be irrational and haphazard when random methods are tried without attention to the possible causative factors.

True cardiac resuscitation has been defined as "full and durable restoration, in due time to avoid eventual death, of the essential functions of a heart which has lost its power to propel blood and which, to all appearances, is unable to recover spontaneously its effective value as a pump." Resuscitation is accomplished by two main methods: 1. restoration of the oxygen system by breathing actively 100 per cent oxygen via an endotracheal tube; 2. restoration of the heart beat by cardiac massage.

Restoration of the oxygen system is imperative to allow maximum oxygenation of a diminished blood supply. Such restoration is necessary for good oxygenation of the central nervous system which incurs irreversible damages after three to five minutes of hypoxia. Active artificial respiration has also been found to further enhance the circulation. Naturally, with a pump that has failed, the oxygenation of the lungs does no good unless blood is coursing through the lungs to be oxygenated. This is accomplished by manually operating the "pump," i.e., cardiac massage. It is found that upon active massage the blood pressure can go as high as 100/60; the pulse can reach between 40-60 per minute; and a strong pulse pressure can be palpated in the peripheral vessels. The above maneuvers can keep the patient alive until the myocardium resumes its function.

These measures are the emergency treatments which are used while other agents are being attempted in order to alleviate the causative situation. If the condition is thought to be due to shock, massive transfusions may be given. If the condition is thought to be due to heart block or other evidences of decreased irritability, epinephrine may be given in the region of the S-A and A-V node to stimulate the pacemakers. Pronestyl (200 mgm.) and procaine hydrochloride (100 mgm.) have been used to decrease the irritability of a fibrillating ventricle and also have been used in cases where extreme abnormalities of rhythm were noted prior to the arrest. Johnstone[2] has advocated the use of atropine, either intermuscularly or intravenously, during arrest for those cases where vagal stimulation, directly or indirectly (vago-vagal reflex), is the precipitating factor.

Special attention should be given to the necessity of distinguishing the two forms of arrest. The wrong type of therapy can remove all possibilities of resuscitating the patient. If there is cardiac asystole, epinephrine is the drug of choice for stimulating; and procaine or pronestyl will not be contraindicated. However, should it be a case of fibrillation, nothing should be done, not even massage, until the heart has been defibrillated. Epinephrine in a fibrillating heart is definitely contraindicated because it increases the irritability. Various methods of defibrillation have been attempted. Among these methods are procaine hydrochloride and pronestyl. A newer method, devised by Beck,[3] has advocated the use of an A.C. current of 110 volts and 1.5 amperes to cause the cessation of the circus movements in a fibrillating heart.

Techniques of massage are widely varied in so far as the approach to the heart is concerned, but the massage is essentially the same. It consists of a gliding stroking motion toward the great vessels either compressing the heart between the thumb and fingers or against the sternum. Various approaches are transperitoneal subdiaphragmatic, transperitoneal transdiaphragmatic and transthoracic. Beck has recently developed a suction cup apparatus for massage which seems to be somewhat more efficacious because a better filling of the chambers is accomplished, and the pulse rate can be increased greatly over that of the manual technique.

Summary

A case history of cardiac arrest is given along with the various postulations as to the etiology. The diagnostic findings in cardiac arrest are elaborated. A comprehensive classification of the various possibilities of etiology is outlined. The treatment of the condition with emphasis on pharmacological agents, techniques of massage, and defibrillation has been discussed.

Bibliography

1. Ruzicka, E. R., and Nicholson, M. J.: Cardiac Arrest Under Anesthesia, J.A.M.A., 135:10, November 8, 1947.
2. Johnstone, M.: General Anesthesia and Cardiac Inhibition, British Heart Journal, 13:1, January, 1951.
3. Beck, C. S., and Rand, H. J.: Cardiac Arrest During Anesthesia, J.A.M.A., 141:17, December 24, 1949.

The Early Care of Injuries of the Genito-Urinary Tract

Committee on Trauma, American College of Surgeons

Injuries of the Kidney

Injuries of the kidney range from a mild contusion without rupture of the capsule, through all grades of rupture and crushing to complete severance of the vascular pedicle. There may be no other injuries or there may be accompanying injuries such as lacerations, fractures of ribs, limbs, or skull, puncture wounds, et cetera. The kidney may not be the only internal organ damaged and in many instances the injuries to other organs are more important than that to the kidney.

Injuries to the kidney result from (1) falling against a rail or other edge; (2) collision with others in sports such as football, baseball, hockey, et cetera; (3) a blow on the abdomen or flank by a piece of machinery or falling object; (4) crushing injuries, as between two cars; (5) automobile, coasting, and skiing accidents; and (6) gunshot wounds.

Diagnosis is usually not difficult. The appearance of blood in the urine in any amount, large or small, combined with the history of injury and pain in the flank, is usually sufficient. Usually present are other findings such as tenderness and perhaps tumor in the kidney region, rib fracture, or local body lacerations.

It is more difficult to determine the severity of the injury to the kidney, and for this pyelography is essential. Excretory pyelography often shows only nonfunction of the affected kidney; but retrograde pyelography, if feasible, will usually show the extent of rupture and of destruction of the normal pelvic architecture.

Treatment is directed, first, to the saving of life and, second, to the conservation of renal tissue and function.

The patient's general condition is the most important guide to the immediate treatment. If the general condition is good and remains so, with normal or rising blood pressure and no evidence of increasing or serious hemorrhage, a period of quiet rest is the best treatment. Especially in children, this should not be cut too short. If the pyelograms show no great deviation from normal renal architecture, both the patient and his kidney may be expected to recover completely.

If condition at first is good but deteriorates with falling blood pressure, evidence of increasing hemorrhage and a growing mass in the flank or upper quadrant, or if the patient is in collapse when first seen, transfusions should be given and the degree of renal injury determined by pyelography. If this shows no great deviation from normal, it is still advisable to refrain from operation and trust to rest and further transfusion, since most of such patients will recover. A few may require operation later because of perinephric abscess, cyst, or hydronephrosis.

When the pyelogram reveals that the kidney is blasted beyond recognition and especially if signs of progressive hemorrhage are evident, prompt nephrectomy is indicated, provided the patient's general condition will permit. Experience has shown that nephrectomy in the presence of severe shock is very often fatal. In gunshot wounds with concomitant bowel perforation the whole attention should be given to the bowel and no attempt made to repair the kidney unless the patient is an excellent surgical risk.

In summary, it is safe to say, first, that the great majority will recover without operation, but there is a small group in which the kidney has been irreparably damaged and must be removed; second, operation on the kidney during shock is absolutely contraindicated; and, third, retrograde pyelograms give essential information often not obtained from excretory pyelograms.

Injuries of the Bladder

Except for the penetrating wounds of warfare and the occasional accidents of pelvic and transurethral surgery, rupture of the urinary bladder almost always occurs as a complication of fracture of the bony pelvis. Fully 95 per cent of bladder ruptures encountered in civilian practice are from this cause. Indeed, the coincidence is so classical that in every case of pelvic fracture, bladder rupture should be suspected and immediate examination carried out lest it be overlooked and hours of serious urinary extravasation occur before it is discovered.

With the pubic arch or one of the pubic rami splintered, a spicule of bone cuts or pierces the front bladder wall. Accumulated urine within the bladder flows out into the loose areolar tissue of the space of Retzius from tonic bladder contraction and, thereafter, that which is excreted continues to extravasate. After only a few hours of this leakage, extensive extraperitoneal extravasation of the pelvic cavity occurs with severe phlegmonous destruction of the infiltrated tissues and extreme general toxemia from local absorption. In these rare instances in which the bladder fundus is ruptured, the leakage is intraperitoneal and, surprisingly enough, far better tolerated than when the perivesicular structures are infiltrated.

The *symptoms* of bladder injury are often obscure until such time as extensive extravasation has oc-

curred. Unless bladder injury is suspected, the deep pubic distress can easily be mistaken for the pain of the pelvic fracture. Occasionally persistent bladder spasm occurs with so-called bloody anuria, i.e. frequent attempts at voiding but passing nothing but a few drops of blood. Far more often than not, if bladder injury is not suspected and adequate examinations made, the situation will go unrecognized until board-like rigidity of the lower abdomen develops from peritoneal irritation. Meantime increasingly profound general symptoms develop.

The *diagnosis* depends entirely upon direct examination. Every patient with pubic fracture should be catheterized *at once*. If a catheter enters readily, the urethra is not seriously damaged. If some quantity of clear urine is obtained, the bladder is not damaged. Indeed, one may then be certain that no injury has occurred anywhere throughout the urinary tract. If a sizeable quantity of urine is obtained, even though it may be bloody, there is reasonable assurance that nothing worse than bruising of the bladder wall has occurred and an indwelling catheter for a few days is all that may be necessary. Excretory urograms should, of course, be done to exclude renal injury causing the bleeding.

But if the catheter enters the bladder readily and nothing is obtained but a little watery or clotting blood, bladder rupture is almost a certainty.

The simplest means of confirming the diagnosis of bladder rupture is both time-honored and, if done under proper sterile technique, quite safe. A measured quantity of sterile water (perhaps 200 cc.) may be injected through the catheter and, if little or none can be recovered, bladder rupture is almost certain. If the exact amount can be recovered, bladder rupture is not likely to be present.

While this simple procedure is quite useful as a makeshift, there is room for error and it is far better, when possible, to use a small amount of opaque medium commonly used for intravenous urography, adding it to 200 cc. of sterile water, and take a cystogram (anteroposterior and semilateral). Diffusion of the dye in the extravesical tissues of course cinches the diagnosis.

The *treatment* of bladder rupture entails two things—and the quicker they are accomplished the better. First, further extravasation must be stopped at once by an emergency cystostomy. Second, all of the loose areolar tissue in front and at the sides of the bladder presenting the telltale watery appearance of extravasation must be opened widely by finger dissection and drained by multiple Penrose drains. While it is far less urgent than either of these, some attention should be paid to the bladder injury itself. Usually this amounts to nothing more than a small puncture wound in the front bladder wall that can be closed with a single stitch or even used as the cystostomy opening if near the midline. Unless extravasation has been unusually extensive the drains can be withdrawn gradually after a few days and a Foley bag catheter exchanged for the cystostomy tube until the wound has healed.

Injuries of the Male Urethra

Injuries of the male urethra require early recognition and prompt treatment. The immediate danger is shock and extravasation. Minor injuries may heal spontaneously while severe injuries are surgical emergencies. They may be divided into two groups: (1) anterior urethra, which includes the bulbous portion, commonly involved in straddle injuries, and (2) posterior urethra, more often involved in fractures of the bony pelvis.

Symptoms and Diagnosis: (1) blood at the meatus is the earliest and most common sign; (2) retention of urine occurs in severe injury; (3) the swelling of urinary extravasation may be seen in the perineum, scrotum, or lower abdomen if the patient has urinated; (4) rectal examination is valuable in posterior urethral injury. In complete rupture the prostate is rendered movable and dislocated upward; (5) catheterization is imperative to determine the degree of injury but must be done with utmost gentleness and strict asepsis.

Treatment: If catheterization is possible, a Foley bag catheter should be left indwelling to prevent voiding with the danger of extravasation. If clear urine in quantity is obtained, there is assurance that injury of the bladder has not occurred.

If a catheter will not pass, it is evidence that complete rupture has occurred. Two problems at once present themselves: first, extravasation of urine and, second, re-establishing continuity of the urethra. Fortunately an asthenic retention often occurs and the patient is seen before he has extravasated his torn tissues by voiding. In such an event, *immediate* cystostomy must be done. If delay is unavoidable, suprapubic trocar puncture is justified.

If the patient has already extravasated his tissues by voiding, immediate cystostomy still is indicated to avoid further extravasation. At the same time, wide incision and drainage of the extravasated areas must be done to prevent massive tissue sloughing and infection.

With the bladder open, a sound can be passed from within outward to meet a second sound passed into the urethra. Holding metal on metal the outer sound can be guided past the fault in the urethra and advanced into the bladder. The heel of an ordinary catheter may then be pushed tightly onto the tip of the sound and drawn back out of the urethra. The tip of a Foley bag catheter may then be stitched to the plain catheter and drawn into the bladder and

inflated. It is left indwelling two or three weeks as a splint over which the urethra will bridge and heal. It also offers perfect bladder drainage so that cystostomy drain can be removed in a few days and the wound allowed to heal.

Injury of the female urethra is uncommon. A catheter can usually be passed and may be left in place five to ten days, depending upon the extent of injury.

Injuries of the External Genitalia

Closed wounds, such as contusions or rupture of the penis, are treated expectantly. Large hematomas should be evacuated under rigid asepsis.

In open wounds of the penis and scrotum, general surgical principles apply. Restore normal conditions as far as possible. If the testis is avulsed but blood supply is intact, replace it in the scrotum. Primary repair is usually possible and seemingly hopeless wounds will often heal without difficulty. The following procedure is recommended:

1. Cleanse with soap and water, and irrigate with saline.
2. Save every bit of viable skin. It is seldom necessary to trim skin edges.
3. Control hemorrhage. Compression may be applied to the penis over an indwelling catheter. Sutures may be necessary in bleeding from corpora.
4. Close without drainage, using absorbable suture to skin of scrotum. Is skin is totally denuded and inadequate for closure, apply fine mesh vaseline gauze and arrange for early split-thickness skin graft.
5. Protect with antibiotics and administer antitetanus therapy.

PATRONIZE JOURNAL ADVERTISERS

It is advertisers who make possible the publication of the Journal in its present form. They are deserving of your patronage.

A LETTER FROM THE DEAN

At this time when I assume the duties of dean of the University of Kansas Medical Center I wish that it were possible for me to write a personal letter to each one of you who is a member of the Kansas Medical Society. Since time and facilities do not permit of this, I hope that this general letter will serve in its stead.

As you all know, I have been associated with the medical center for one year; I arrived here in days of hardship for the state, just as the waters were building up to a disastrous flood. I take over my duties now in the days of good fortune when our record wheat crop is being harvested. I hope that this latter evidence of the abundance of nature represents an omen for the future of our school. Certainly it represents to me the complete meaning of our state motto.

I should like to reaffirm to you the functions which a medical center such as ours must provide. These, primarily, are: education, research, and community service. Each of these functions, I believe, is important to you as well as to the members of our allied professions: nursing, pharmacy, veterinary medicine, and hospital councils. The medical center is here to serve all of you and it is my purpose to implement this service.

Our function of education has many facets—the medical school, the nursing school, the training of medical technologists, occupational and physical therapists and practical nurses, and, to me the one of great prominence, our program in postgraduate medical education. We have at the moment one of the outstanding programs in postgraduate medical education in the country. It is my hope that we shall be able to continue our leadership in this field; it is my promise to you that this is of prime importance in our charting for the future.

With this program we need your help. We need above all else your suggestions, your critical comments and your advice. Here, as in every other function of the school, our problems are your problems, our plans are your plans, and our success, when it comes, must be your success. I cannot conceive of any two entities within a state whose aspirations and problems are more indissolubly one than the school of medicine and the medical society. For this reason I pledge our cooperation to you and ask your cooperation for us. Together we cannot fail to strengthen and improve our mutual programs designed to benefit every citizen of Kansas.

I hope that in the near future I may have the pleasure of meeting each one of you. I trust that when you visit the medical center you will find time and feel free to come in and visit with me. In like manner I shall feel free to call upon you as I travel throughout the state.

I am taking over my new duties with humility and yet with pride. I am proud of our school and its achievements, but I am most proud of the fact that I am a Kansas physician.

W. CLARKE WESCOE, M.D., Dean
University of Kansas School of Medicine

PRESIDENT'S PAGE

Dear Doctors:

The history of the medical profession—past and present—is one of the most interesting, and in fact, amazing of all human documents. The achievements of medicine in the past 50 years through research and discovery are truly amazing and have resulted in the perfection of tools for the medical profession which have had far-reaching results in the treatment of human ailments to the end that many of the formerly dreaded diseases of the past are now in reality only memories.

The span of life has also been substantially increased. The average American is receiving more and better medical care as a result than ever before, and certainly we are the best cared for group of people in the world.

All of this has recently been given a great deal of publicity; however, there are other factors which are definitely responsible for this marked progress of American medicine. We would call your attention to one of the most important. We refer to the moral conscience of the profession at large. Probably no one in the professional field or otherwise has a greater opportunity to exploit the public more completely than the medical profession. Let it be said to the credit of the profession that this has been done only in a very minor degree, due to the existence of the very definite conviction of the profession at large in regard to this matter of moral consciousness.

Dr. Rudolf Matas in describing this matter has said, "The moral conscience is that intangible something, a still small voice that rising from the depths of our inner-most selves whispers a warning when we are doing wrong. It is the spirit of ancestral generations which, whether good or bad, is housed in us while in transit to our successors. When a man wakens to the ring of his conscience, gets to work and starts to put his house in order, we may say he has character. Character is the will to put into action what the voice of conscience has roused in him. Conscience without the will to act upon its bidding is powerless and might as well be dead."

The existence through the years of the history of the profession of a moral conscience, together with the development of a medical conscience, has been one of the finest contributions of the profession to human existence. It has possibly not been given the publicity which it so well deserves; however, without it as a foundation, the record of modern achievements in medicine could not have been so wonderfully written.



EDITORIAL COMMENT

More Power from Niagara

An interesting pamphlet recently was prepared by five electric power companies in New York. They are fighting a legislative proposal to create a huge federal power plant at Niagara which will furnish electricity for a wide area around New York. This is unrelated to any problem of medical care, but since it quite clearly represents an encroachment by the federal government upon free enterprise it was considered worth reviewing for the physicians in Kansas.

The United States Senate ratified a treaty with Canada in 1950 which permits the United States to utilize additional water from the Niagara River for power production purposes. Shortly thereafter Senator Lehman of New York and Representative Franklin D. Roosevelt, Jr., also of New York, proposed bills to construct such power plants from federal tax funds. The five electric power companies declared that they are in a position to build such plants quicker and cheaper without tax money and that the revenue from this power will produce additional tax income instead of reducing it as would be the case under the other proposal. They state in part, "Loss of tax revenue is a serious threat to our national income, and any project that means curtailment of tax revenue—especially when private enterprise is ready, willing and able to do the job—should be rejected." These companies claim the total public benefit would be $40 million yearly under development by private enterprise.

The real point of this battle is that this is the first time the federal government has offered to invade the field of free enterprise for the construction of machinery solely to create electric power. In every other instance the construction has been performed on the basis of flood control, navigation, reclamation, irrigation or sanitation. This is strictly a project to provide more electric power and nothing else. This has nothing to do with the controversial St. Lawrence seaway which is 250 miles from Niagara Falls.

It is, therefore, federal invasion of the field of electric utility companies. Should the bill pass, tax money will be used for the creation of this project. The pamphlet was sent to medical societies, and the above summary is published here, to show that the problem of socialization involves not one business or profession but all of them. Today America is no longer fighting just socialized medicine but the encroachment of socialization in all fields of enterprise. This thought is stated in the pamphlet as follows: "The issue is clear cut. Shall the government enter directly into competition with its own citizens in the production and sale of electricity? And if government is to be permitted to nationalize the electric light and power industry, what is to prevent nationalization of other industries? Banks, for instance, transportation, the oil and steel industries, etc? Other countries have followed that pattern, and today America is being called upon to help pay for their costly experiments."

Malpractice Insurance

There has been considerable confusion in the minds of numerous physicians on the subject of malpractice insurance. Sufficient questions have been asked to make it appear appropriate that a statement be carried in the Journal.

The Kansas Medical Society believes it only good judgment for each practicing physician to carry malpractice insurance. There are four or five or perhaps more reliable companies selling insurance of this type in Kansas. These companies differ in their philosophy on how much insurance the individual physician requires, and the medical society does not believe itself to be in a position to argue this point. Some companies favor low limits and careful legal attention to each case, while others insist that higher limits are necessary. Physicians can be found who will support each of those views, and some have purchased policies with more than one company.

An occasional member carries no malpractice insurance in the mistaken belief that the Kansas Medical Society provides him protection should this be required. In an effort to make this point perfectly clear, it is stated again that the Kansas Medical Society carries no malpractice insurance for any physician. The Society strongly urges each doctor to provide such protection for himself through whichever company he wishes to select. The Kansas Medical Society does have a Defense Board which may be of assistance but only within specific and limited fields.

Assistance from the Defense Board is supplemental to the work of an insurance company and is available to a physician upon request, and then only following approval of his county society and the councilor of the district in which he resides.

The revised Constitution and By-laws, Chapter IX, Section 1, carries the following explanation. "Members of the Kansas Medical Society are urged to carry individual professional insurance with commercial companies as these usually include possible indemnity in their policies, but additional assistance of the Society Defense Counsel may be provided if

necessary or desired. It shall be the duties of the members of the Defense Board, severally or collectively, to investigate all claims of malpractice made against members desiring Society assistance; to assist in conducting the defense, and to pay the Society defense attorney his fee and expenses from funds of this Society within their control, but they shall not pay or obligate this Society to pay any court costs or judgments rendered against any member in the final determination of any case, nor shall they be obligated without affirmative action to pay the fees of any local attorney employed by the member. The Defense Board shall be empowered to contract with agents or attorneys as it deems necessary, insofar as the amounts to be expended thereby are approved or do not exceed the amount of the annual budget for defense purposes."

The by-laws give more details concerning the work of the Defense Board, but the above paragraph explains the limits within which the Defense Board can operate. Any member wishing further information on this subject may write the Executive Office for a copy of the Constitution and By-laws.

Another frequently asked question is why the Kansas Medical Society will not select one company from which all members might purchase their malpractice insurance. This answer is relatively simple when viewed from the experience of states that have followed such procedure. It has happened that one or another company has withdrawn its policy from a certain state as a result of a series of adverse judgments. Should that happen where only one insurance company is operating, it could immediately affect each practicing physician in the state. Moreover, the medical profession has experienced excellent service from several companies currently operating in this state and therefore it is believed that the individual physician should make his own decision according to his own knowledge as to which company he prefers.

American Apathy

A great hue and cry has been raised recently by civic clubs, women's organizations and editorial writers throughout the country in an effort to instill basic principles of citizenship in the people of voting age in this nation. But the American people, accustomed as they are to independence in thinking, action, and, if they are so disposed, lack of action, continue to be apathetic about registration and voting.

Opportunities to exercise citizenship abound in business and professional life, but the most direct and most effective application is at the polls. In spite of the importance of this opportunity, voters are so indifferent that the turnout decreases at each election. Only 49 million of the approximately 96 million eligible voters in the United States cast ballots in the 1948 election.

A recent study by the Saturday Evening Post compared election participation in this country with that of other leading nations of the world and disclosed that only 51 per cent of our people were interested enough in the conduct of national affairs to express their preferences. In the most recent election in Belgium, 90 per cent exercised their right of franchise; in Italy, 89 per cent; in Great Britain, 82 per cent; in France, 75 per cent; in Japan, 70 per cent.

It is granted that residents of those countries have had more direct threats to freedom than we have known. Among their neighboring countries they find evidence of the power that takes over when freedom is lost. They understand from personal observation that citizens who do not safeguard their liberty soon lose their individual rights. They are concerned about what might happen to them; they make use of their opportunity to vote for the candidates who will truly represent them and their ideas in government.

We know nothing of dictatorships from experience or from personal observation. Our battle is to maintain the advantages we now enjoy, an easier battle by far than would be a struggle to regain freedom should it be lost. We are acutely conscious of military aggression by foreign powers that threaten, but lose sight of the fact that the apathy and indifference of the American people constitute a greater threat than any from abroad.

Too many of us use the trite but jocular remark that those who don't vote aren't entitled to criticize or complain about government. That negative attitude accomplishes nothing. If the positive approach were used, if all eligible voters appeared at the polls, perhaps there'd be less to complain about. A recent Gallup poll turned up the interesting fact that 71 per cent of the persons queried about national affairs complained about taxes. Could it be possible that all those complainers were among the 51 per cent who voted?

All persons can state with truth that there are too many demands on their time, that they don't have an opportunity to take part in as many worthy activities and organizations as they wish. The complexity of modern life makes valid that statement, especially so for the physician who has professional as well as civic, business, personal and social responsibilities. But the exercise of citizenship by voting is not time-consuming and those who wish to cast a ballot can find time to do so. We will have the government our forefathers envisioned "...of the people, by the people, for the people," only when we are represented 100 per cent at the polls.

Conference of Presidents

The Conference of Presidents, annually held on the Sunday preceding the A.M.A. session, is always an outstanding event but never more so than at this past occasion. Six scholarly addresses on economics, government and free enterprise were startling in their power, their forthrightness, their direct approach.

All were excellent but listing only the more nationally known figures, the audience listened in succession to Mr. Allan B. Kline, Chicago, president of the American Farm Bureau Federation; Mr. Clarence Manion, J.D., South Bend, dean of the law school at the University of Notre Dame and author of the currently popular "The Key to Peace;" and to the Honorable Walter H. Judd, M.D., Rochester, prominent member of the Congress of the United States. It will be impossible to summarize these speeches, so the following is merely a sentence or two from what was said during this memorable occasion.

On the subject of taxes: You may look at taxes however you wish, but the ultimate truth is that every tax represents a transfer of purchasing power from the people to the government. As taxation becomes heavy the people's purchasing power decreases and the power of government grows great. Since ours is not a pure democracy, as many misguided enthusiasts believe, but instead a representative government, it becomes of tremendous importance to the governed that they should select carefully those persons they wish to have represent them. The elective process empowers the victor to that office to decide how the tax portion of this income will be spent. He further controls the amount of your income that will be taken over for taxes.

On inflation: "Don't call it socialism; call it what it is, tyranny. Don't call it inflation, but give it its proper name, larceny." Inflation is caused by the federal government's deficit spending, which is as surely stealing from the people of this nation as any other form of thievery.

On government: One speaker quoted James Madison as follows, "If people were angels, we would not need government; if governors were angels, government would not need restriction; but since neither is true we must have government, and government must be contained." He then presented a very large thought in simple words which it is recommended might be carefully considered by every individual who has taken the time to read this summary. It is recommended that this thought be expanded to evaluate our present situation and our hope for survival in the future as free men under a democracy. The statement was, "Big government is for little people; only big people can afford the luxury of little government."

DEATH NOTICES

RALPH ALLISON LIGHT, M.D.

Dr. R. A. Light, 80, an active member of the Neosho County Society, died June 3 at Chanute. He received his education at the University College of Medicine, Kansas City, graduating in 1898. He began practice in Chanute, in association with his father, after his discharge from military service in the Spanish American War. He was active in civic affairs and at different times served as a member of the city council, as finance commissioner, as coroner, and as a member of the school board. His tenure of office as county coroner extended over 40 years. He was also interested in medical society affairs, served as secretary of the Kansas State Board of Medical Registration and Examination, and for 20 years was surgeon for the Santa Fe Railway.

* * *

FRED CALHOUN, M.D.

Dr. Fred Calhoun, 81, died at his home in Sedan on June 8, following a long illness. He was an honorary member of the Chautauqua County Society, and had practiced in the county for 46 years. He was a graduate of Illinois Medical College, receiving his degree in 1903.

* * *

HAL ELLSWORTH MARSHALL, M.D.

Dr. H. E. Marshall, 55, who had practiced in Wichita for more than 25 years, died on June 15. He was an active member of the Sedgwick County Medical Society and had served as president of the group. He was graduated from the University of Kansas School of Medicine in 1925, and began practice in Wichita. His work was limited to ear, nose and throat practice. Dr. Marshall was a diplomate of the American Board of Otolaryngology and a member of the American Academy of Ophthalmology and Otolaryngology.

* * *

ELVEN O. BAKER, M.D.

Dr. E. O. Baker, 75, an active member of the Sedgwick County Society, died June 17 following a long illness. He was graduated from the Kansas City Homeopathic Medical College in 1899 and practiced in Seiling, Oklahoma, before coming to Kansas in 1904. He retired from his practice of internal medicine in Wichita early this year because of poor health.

Case Report From The University of Kansas Medical Center Clinical Pathological Conference

Pineal Teratoma

Edited by Glen R. Shepherd, M.D., and Mahlon H. Delp, M.D., from recordings of the conference participated in by the departments of medicine, pathology, pediatrics, neurology, radiology, and surgery (neurosurgery), and the junior and senior classes of medical students.

Case Presentation

J.T.P., a 4½-year-old white male, was well until four months prior to admission to KUMC at which time he had mumps followed one month later by chickenpox. He recovered uneventfully from these infections, but 10 days after the chickenpox had cleared the patient began intermittent vomiting and became lethargic. When the vomiting persisted and the patient became semi-conscious, he was admitted to the local hospital where he remained until 2½ weeks prior to his admission here. During his five weeks of hospitalization the patient was afebrile, had one convulsion and developed a tremor of the left hand. His sensorium cleared but he complained of occipital headaches, and two weeks after admission he had deviation of the eyes downward and inward. Repeated lumbar punctures revealed normal cells, sugar culture and protein.

Following his discharge from the local hospital, the patient's sensorium remained clear until two days prior to admission here. Intermittent vomiting continued. One week prior to admission, trembling of the hands reappeared. Sensorium became cloudy and speech thickened two days before admission here.

Following the mumps, the father noticed an increase in size of the boy's genitalia and two weeks before admission he noticed appearance of fine pubic hair.

Past history and family history were not contributory.

Examination on admission showed a temperature of 99.8° F., blood pressure of 138/90, pulse 120. The patient was a well-developed, well-nourished white male child who was lethargic but could be roused. Sensorium was clear but speech was unintelligible. Head circumference was 54 cm. Sutures were separated. McEwen's sign was positive. Pupils were equal but did not react to light. Bilateral nasal deviation of eyes and papilledema with retinal hemorrhages were present. The neck was questionably stiff. Penis and testes were large and fine pubic hair was present. There was generalized weakness and continuous choreiform tremor in all muscle groups, worse in the arms and accentuated by motion. All reflexes were absent except for knee jerks, which were equal and hypoactive.

Laboratory examinations revealed the urinalysis, complete blood count, blood chemistries and electrolytes to be normal. Spinal fluid: cell count 410 rbc.; 0 wbc., sugar 60.4 mgm. per cent; protein 16 mgm. per cent; smear and culture negative. Serology was negative.

In this hospital, the patient's condition remained essentially the same during his first six days. He then became worse with increase in severity of the tremor. X-ray therapy was started on the sixth hospital day. Three days later, the patient was having violent tremors and was essentially decerebrate. The patient was taken to surgery that day. Following surgery his condition was critical. His temperature rose to 106° F., he had severe respiratory difficulty and cyanosis and expired four hours after surgery on February 14, 1952.

Dr. Mahlon H. Delp (Chairman): Any questions of Dr. Fairchild?

Question: What was the basis for calling this tremor choreiform?

Dr. William P. Williamson (Neurosurgery): I would not call this a choreiform tremor. The tremor was hard to describe other than a vacillating tremor.

Question: Were any tests made on the urinary 17 ketosteroids?

Dr. Robert Fairchild (Pediatric Resident): Yes. His 17 ketosteroids were 4.56 mgm. in the 12-hour specimen with a total volume of 32 cc. That was repeated six days later and was 0.6 mgm. in a 24-hour specimen with a total volume of 200 cc.

Question: Was the respiratory difficulty dyspnea?

Dr. Delp: The nursing notes indicate a varying form of respiratory arrhythmia.

Question: Were any blood pressures recorded after surgery?

Dr. Fairchild: Blood pressures were up to 140/100 following surgery and terminally rose to 140/120. Before surgery, blood pressure was a maximum of 130/90. On the day before surgery it dropped to 115/75.

Dr. Delp: May we have the x-rays that you wish to show, Dr. Tice?

Dr. Galen Tice (Radiology): Because of the precocious sexual development, there is interest in the bone age. This shows four carpal bones in the wrist, which is normal for a child of 4½ years of age. You figure roughly one center of ossification, one carpal bone, for each year of age up to seven years. His bone age is considered normal for his chronological age.

The film of the skull (Figure 1), taken about five days before surgery, shows the classical picture of increased intercranial pressure with widening of the coronal and lambdoidal suture and widening of the longitudinal suture. I would think that this was a relatively rapid increase in pressure as there is no appreciable depression of the floor of the skull. There is more convolutional atrophy than one would expect of a child of this age. Calcification appears within the pineal body.

Ventriculograms were made a day or so later. Here calcification of the pineal body is obvious. The ventricles were dilated. The third ventricle appeared pushed forward.

Dr. Delp: There is one electrocardiographic tracing that has been taken. We would like to see that.

Dr. E. Grey Dimond (Medicine): Mr. Cooper, will you read the EKG.

Mr. Donald Cooper (Junior Medical Student): The rhythm is regular and the rate is approximately 140 with a regular sinus mechanism. The T waves are inverted in lead III and AVF. P waves are somewhat elevated and spiked in lead II. There is a mild elevation of the ST segment in leads III, AVR, AVL, and AVF. The T wave is inverted in lead I. Axis deviation seems to be normal with a plus 30 degrees. The diphasic lead across the chest is VI. This shows that the heart is pointing opposite to this or posteriorly. There is no other pathology than the spiking of the P wave in lead II and the possibility of ischemia due to the tachycardia as seen in the inverted T waves.

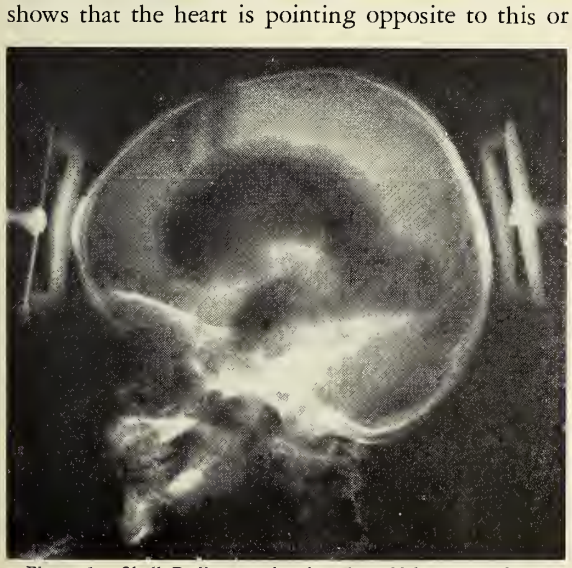


Figure 1: *Skull Radiogram* showing the widely separated suture lines, the extremely dilated lateral and third ventricles, and the tumor mass displacing anteriorly the third ventricle and occluding the posterior half of it.

Dr. Dimond: What is your conclusion now?

Mr. Cooper: Sinus tachycardia.

Differential Diagnosis

Dr. Delp: Mr. Youmans, may we have your discussion of this case?

Mr. Ronald A. Youmans (then Senior Medical Student): I would like to call a little attention to the sequence in development here. To begin with, four months prior to his admission to this hospital he had mumps. At that time his father noticed that his genitalia were large, indicating there may have been an abnormality at least four months prior to the process we are going to discuss.

Three months prior he had had chickenpox. His symptoms hadn't seemed to be too severe. There is the possibility of a postinfectious encephalitis from the chickenpox. He could, of course, have had a pre-existing tumor coincidentally showing signs at this time.

Two weeks prior to admission here, the pubic hair was noted. It is interesting that it had not been noted earlier—at the time of his mumps or chickenpox. One week prior to his admission here, the tremor reappeared, chiefly affecting the left side.

He was admitted here with lethargic but clear sensorium, and thick speech. Although the head circumference measured 54 cm., it usually is between 51 and 52, indicating a definite enlargement. The enlargement was verified by widening of the sutures shown in the x-ray.

McEwen's sign is not significant in a 4½-year-old. I think usually the sutures are not fused well enough to say the positive McEwen's sign is significant. His pupils were fixed and would not respond to light. He did have nasal deviation. The nasal deviation, of course, suggests the possibility of a sixth nerve injury somewhere along the line. He had plus four funduscopy which would go along with a diagnosis of hydrocephalus of some sort or at least prolonged high intracranial pressure.

The choreiform tremor now was noted over all muscle groups. Six days before he died, he became worse and the tremor worse. He was taken to surgery and soon after operation a spiking fever and respiratory difficulty began.

In the differential diagnosis of precocious puberty, essentially three types are considered. In the rare idiopathic type, a youngster for no apparent reason seems to mature between ages four to six years. Girls occasionally have been reported to have babies at that age. Why they develop precociously is not known. Aside from the age difference, they do

develop normally and very frequently live a usual life otherwise. Though the menses may start at the ages of four to five in the female, the menopause appears at the usual age. Males show a lack of libido in spite of the apparent secondary sex characteristics. They are otherwise normal individuals who for some unknown reason have developed sexuality early.

The second type stems from a cerebral lesion, primarily a pineal or hypothalamic lesion. With that there is a possibility of a third ventricle teratoma-like tumor.

The third group to consider in precocious puberty does not apply here because it is what is called the abdominal type. This may be due to ovarian tumors, chorionepithelioma, teratoma, granulosa cell tumor and such in females. In males it may be from a testicular neoplasm. In either sex, secondary sex characteristics may arise from adrenocortical tumors, either as distinct hyperplasia or actual neoplasm.

I think that limits us to the differential diagnosis between a pineal body tumor of undetermined type and a hypothalamic lesion. These are extremely difficult to differentiate clinically. This patient had evidence of hydrocephalus of several months duration.

Bailey makes a flat statement that when an infant has an internal hydrocephalus, inability to elevate the eyes and precocious puberty, the triad is diagnostic of pineal tumor. I feel that is probably what we have in this instance. The vibrating tremor described today is more likely due to pressure on the superior peduncle of the cerebellum with a cerebellar tract irritation causing the tremor.

Four hours after surgery, his temperature rose. He had respiratory difficulty and cyanosis. The temperature elevation in only four hours postoperatively is not compatible with an infectious state. The idea that hyperthermia is controlled by a specific spot in the brain is not well established. It seems that sudden pressure on the anterior portion of the brain stem will produce hyperthermia.

I think this patient probably had a pineal tumor of unknown specific cell type. I don't think you can describe it any better than just simply pinealoma. The respiratory failure was possibly due to hemorrhage into the fourth ventricle.

Dr. Herbert Miller (Pediatrics): As the history is given in this protocol, this child couldn't possibly have encephalitis due to chickenpox because the symptom came on 10 days after chickenpox had cleared. At least 9 or 10 days are required for chickenpox to clear, so that would mean that the encephalitis would have had to come on 20 days after the onset of the chickenpox, which I think is out of the realm of possibility.

It is quite obvious that this child had some endocrine disturbance.

Clinical Discussion

Dr. Delp: I would like to have some comments with regard to the ketosteroids reported here. I think you ordered them, Dr. Bolinger.

Dr. Bolinger (Medicine): I don't think you can place too much credence in the ketosteroid values because of their wide variation in this case. The most common error in the determination of steroids is in the urine collection as a rule. We have few other measurements of urine volumes, and since the usual error is for the urine to be lost, I think the highest value would be the one to be accepted. As a value of four was found in 24 hours, it was the highest value and was probably the correct one. It is abnormal for that age. It does not fall into the range we usually think of or find in an adrenal tumor, however.

Dr. Delp: Does it suggest a pineal tumor to you?

Dr. Bolinger: It would suggest one of two things, either a pineal tumor or the so-called idiopathic type of precocious puberty which Mr. Youmans described. It does not suggest an adrenal lesion clinically because the adrenal type of precocity is associated usually with atrophic or small testes. There is no enlargement.

Dr. Delp: Is there any devious reasoning by which you could make connection between the signs of early puberty and the mumps which he apparently had some month or six weeks before?

Dr. Bolinger: Well, I tried to find some reference to precocious puberty and encephalitis but I was unable to find anything very concrete. I think it is conceivable that one could have some lesion in the diencephalon, but I think the time interval is too short to produce precocious puberty for that reason.

Dr. William Williamson (Neurosurgery): We didn't have much doubt but that the child had a brain tumor based on the fact that he had progressive headaches, vomiting, stupor, papilledema, and neurologic deficit plus exceedingly wide separated sutures in which you could stick your fingers. Those are the widest separated sutures, by the way, that I have ever seen in a live person. As to localizing signs, he had the classical picture of a tumor in the region of the pineal gland affecting the superior colliculi, paralysis with upward gaze, fixed pupils that didn't respond to light, and bilateral sixth nerve weakness.

There has been discussion about his tremor. I don't think there is such a thing as vibrating tremor. That was my term to describe it. That is how it appeared. It was a tremor that wasn't purely cerebellar or purely pyramidal tract, nor purely from weakness.

This type of tremor meant very severe hydrocephalus with involvement produced by the hydrocephalus of the pyramidal system, the extrapyramidal system, and the pontocerebellar system. It was associated with both rest and intentional movement. He was actually vibrating all over in sort of a decerebrate state.

All this indicated a tumor in the region of the pineal gland. This case was an emergency. If anything were to be done, it had to be done quickly. We didn't feel like going through the endocrine studies at that time. We felt that we should verify by ventriculography the exact location of the lesion and the fact that it was neoplasm despite the clinical evidence.

The ventriculogram does show a hydrocephalus with a block of the posterior part of the third ventricle. I think this particular film outlines the tumor mass projecting into the posterior part of the third ventricle.

We were aware of the fact that in the best of hands the mortality rate in attempted total removal of pineal tumors is around 80 per cent. In some hands it has been as high as 90 per cent. The consensus among neurosurgeons now is that it is best to attempt some sort of temporary decompression measure, including x-ray irradiation of the tumor. We found several reports in the literature of pineal tumors treated with decompression and x-ray therapy that were still alive at 5, 10, 12, and one at 14 years. I found only five cases reported of total removal that survived and were worthwhile. Out of 53 cases of pure pinealomas reported, 52 were dead.

We elected to put a catheter in the ventricle to relieve the hydrocephalus, and then give x-ray therapy. In spite of the catheter in the ventricle which should have relieved the pressure, no improvement appeared. It was then apparent that the gradual downhill course was from direct compression of the brain stem and superior colliculi or direct invasion by the tumor. A total of three or four x-ray treatments was given. That isn't an adequate trial of x-ray therapy.

Temporizing measures failing, surgical removal of the tumor was performed. There was no unusual blood loss or any anoxia during surgery. He really did surprisingly well and looked well a couple or three hours after surgery. I don't know exactly what he died of, but certainly it was not unexpected.

Dr. Delp: Do you have any questions about this tremor, Dr. Steegmann?

Dr. Theodore Steegmann (Neurology): I would agree that this tremor was probably due to pressure. One would have to take the localization of it away from the superior brain stem. Such tremors frequently are seen arising from aberrent cerebellar tracts going to the red nucleus. Of course, atypical tremors appear even in parkinsonism.

Dr. Tice: Will Dr. Williamson comment on the calcification of the pineal or shall we change the diagnosis?

Dr. Williamson: The fact that it was way off to one side, I felt meant definitely that it was a tumor. The radiologists said this could be a pineal tumor if it was calcified at age four. We rarely see calcification in a normal pineal in a child.

Pathology Report

Dr. Chauncey G. Bly (Pathology): The child grossly was well muscled and normal externally except for the operative incisions. The heart weighed 120 grams as compared with 90 for this age and body size. There was noted fine pubic hair and hair on the upper lip and enlarged genitalia. The testes were about five times the normal size. The adrenals were about 1½ times normal size but were grossly yellow, which is unusual for a child's adrenal indicating excess steroids for that age and approaching the normal adult picture. The prostate was about twice the normal diameter. The thymus had about one-sixth its normal weight with severe atrophy, confirmed by microscopic examination.

The ventricles of the brain were dilated. Periventricular fresh hemorrhages appeared scattered about beneath the ependyma. There were a few scattered focal areas of subarachnoid hemorrhage. The extreme hyperemia and some of the perivascular hemorrhages seen in the cerebrum were partially attributed to the ligation of the venous drainage.

The tumor itself, secured from Dr. Boley in surgical pathology, was smoothly encapsulated and grossly there had been no invasion of the surround-

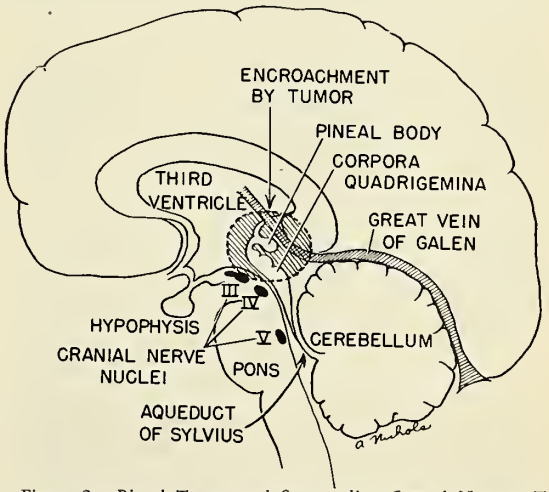


Figure 2: *Pineal Tumor and Surrounding Central Nervous Tissue.* The shaded area in the center of the diagram depicts the approximate location of the tumor resulting in compression and displacement of the great vein of Galen and the splenium of the corpus callosum, the corpora quadrigemina, the aqueduct of Sylvius with occlusion and hydrocephalus, the tectum including the third and fourth cranial nuclei, the superior cerebellar peduncles, and the hypothalamus, together with rupture of the habenular and posterior commisures.

ing brain tissues. Slides of both the tumor and the brain show microscopically no invasion in the areas we have sectioned.

This tumor is a teratoma of the pineal gland. It is not a common tumor. You won't see them in your office practice. Dr. Wartman reported at Wichita recently a series of 1,050 tumors of children, both benign and malignant. There were 25 teratomas in that group. Most of them were in the glands, especially in the ovary. There was only one in the intracranial region and that one coincidentally happened to be in the pineal gland. Most of them occur in the midline regions of the body where there may have been defective apposition of growing embryonic structures or defective division, or deficiency of primary or secondary "organizer substance." The presence of a teratoma may be detected in any age group. Only male children younger than ages 10 to 12 years appear to show the endocrine effects of pineal tumors.

Experimental results in animals are conflicting and inconsistent, but there has been reproducible work in cats and rats showing premature sexual development in male animals after removal of the pineal gland. Actually I don't believe we know much more about the function of the pineal gland than Galen did in his time.

Our sections show the various tissues occurring in this particular teratoma. These includes several areas of epidermis in the middle of the tumor, consisting of subcutaneous alveolar tissue, hair shafts, maturely pigmented cells, epidermis with sebaceous glands, and an epidermoid cyst.

Also visible are mixtures of osteoid and bony tissues, hyaline cartilage, immature connective tissue stroma, various cystic cavities and blood vessels running throughout the tumor. The only structures even faintly resembling the gastro-intestinal tract in this particular tumor are several acinar structures lined by goblet cells. Not all the structures formed are mature or etiologically recognizable. Islands of primitive mesenchymal and possibly choroidal and ependymal cells are seen. The radiologically-visible calcifications in the tumor were actually scattered islands of calcifying bone.

A section of pituitary shows islands of basophilic cell predominance which have been reported to be related to increased production of gonadotropin—this would fit in the picture of the present case.

In this microscopic section of the testis, one sees that it is not normal infantile testis at all. It isn't normal adult testis either, of course, but there are obviously large islands of interstitial cells of Leydig showing tremendous proliferation. The seminiferous tubules show greatly increased activity with several mitotic figures visible. No mature sperm or spermatids were found, but there is definite spermatogenesis in the testis which is far beyond the normal for a child of this age.

A section through the adrenals shows it to be stuffed with lipoid-containing material. With fat stains the amount and distribution of lipoids are clearly more adult than infantile.

A section through the prostate shows enlarged muscular and glandular elements. Both the primary infantile types of glands and the adult type of tall columnar epithelium are seen. So this also fits in with the elevated 17-ketosteroids; nine mgm. per 24 hours compared to one mgm. normal for this age.

The pathogenesis of the endocrinological disturbance is unknown, although it appears to be related to tumors in the posterior portion of the third ventricle with compression of the hypothalamus. Neither general dilatation of the third ventricle nor

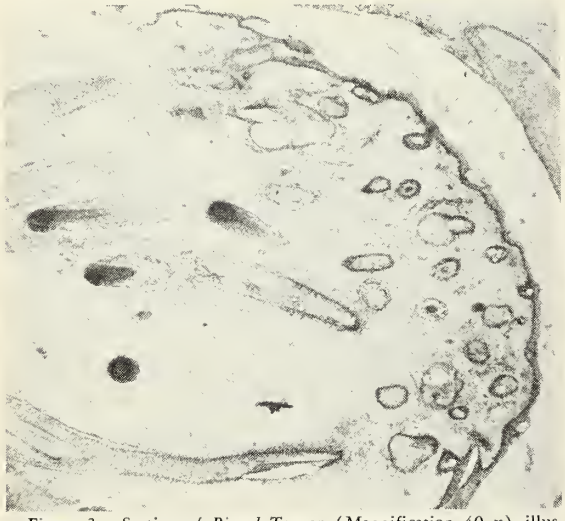


Figure 3: *Section of Pineal Tumor* (Magnification 40 x) illustrates as one structure in the center of the tumor, a large papilla with maturely differentiated epidermis and adrenal with hair follicles, shafts, and pigmentation.

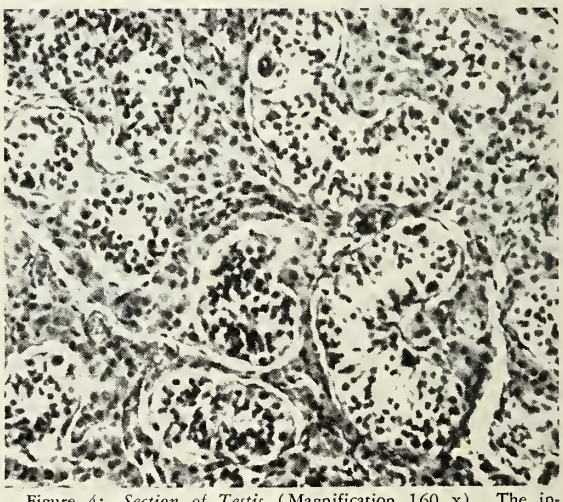


Figure 4: *Section of Testis* (Magnification 160 x). The interstitial cells of Leydig, which make up over half of the mass of tissue in these enlarged testes, are seen in broad sheets of cells surrounding the seminiferous tubules which show increased activity.

the cysts, which are not uncommon in the anterior portion of the third ventricle, produce this picture. Any of the various types of tumors (if one believes there are distinct types) of the pineal gland may produce the picture. We might postulate then that pressure on the hypothalamus (with or without curtailed elaboration of an hypothetical pineal hormone alleged to be capable of inhibiting sexual maturation in male children), results in stimulation (through the hypothalamic-hypophyseal tracts or the hypothetical hormone) of the pituitary basophilic cells. This would result in: increased stimulation of the adrenals and Leydig (interstitial) cells; increased output of 17-ketosteroids; hypertrophy of skeletal and heart muscle; precocious maturation of the seminiferous tubules, prostate, and genitalia; hirsutism; and thymic atrophy.

Early acute bronchopneumonia and interstitial pneumonitis probably contributed to the demise of the patient, who was already in the moribund state from cerebral damage before operation was permitted.

Summary

Pathological diagnoses:

I. Primary changes:
- Fresh scalp incision, skull burr-holes and flap, right occipito-parietal region.
- Surgical absence of pineal (tumor), and hemostasis clips on and about great cerebral vein of Galen.
- Flattened corpora quadrigemina and cerebellar peduncles.
- Dilatation of third and both lateral ventricles—hydrocephalus.
- Thinning and atrophy of floor of third ventricle and posterior commisure.
- Disseminated focal subependymal and paraventricular fresh hemorrhage and hyperemia with sanguinous cerebrospinal fluid.
- Intracortical hemorrhages, fresh, small, of right parietal lobe.
- Small subcortical hemorrhages, left parietal lobe.
- Focal acute bronchopneumonia, and interstitial pneumonitis.
- Focal pulmonary hemorrhages, edema and atelectasis.

II. Secondary changes: (precocious sexual changes)
- Pituitary basophilia
- Hyperplasia of interstitial cells of Leydig and of testicular tubular cells with early stages of spermatogenesis.
- Hyperplasia of prostate, hypertrophy of penis, scrotum, testes.
- Faint hirsutism of lip and pubic region.
- Hyperplasia of adrenals (adult type).
- Severe atrophy of thymus.

Bibliography

1. Selye; Textbook of Endocrinology; Acta Endocrinologica, 2nd ed., 1949, pp. 593-599.
2. Gerstley; et al., Teratoma of the Pineal Body, J. Pediatrics, 17:512, 1940.
3. McGovern; Tumors of the Epiphysis Cerebri, J. Path. and Bact., 61:1, 1949.
4. Walton; Teratomas of the Pineal Region, J. Path. and Bact., 61:11, 1949.
5. Russell; Pinealoma-Relationship to Teratoma, J. Path. and Bact., 56:145, 1944.
6. Ehni; Pineal Teratoma; J. Neurosurgery, 3:86, 1946.
7. Russell, Sachs; Pinealoma (Review 58 cases). Arch. Path., 35:869, 1943.

ACTIVITIES OF MEMBERS

Dr. Frank James, Galena, has been named acting health officer of Cherokee County, replacing Dr. P. R. Perdue, Columbus, who was granted a leave of absence.

* * *

The Arkansas City Medical and Surgical Clinic announces that Dr. W. W. Kridelbaugh is now a member of its staff. Dr. Kridelbaugh, a diplomate of the American Board of Surgery, comes to Kansas from the University of Iowa, where he was a member of the faculty in the surgical department.

* * *

Dr. Hoyt C. Blaylock and Dr. Frederick H. Chard, Wichita, recently became diplomates of the American Board of Dermatology and Syphilology.

* * *

Dr. L. M. Hinshaw, who has practiced in Bennington for 48 years, was guest of honor at a community celebration on June 8.

* * *

Dr. Robert R. Luttrell, Topeka, has been named director of the Shawnee Guidance Center.

* * *

Dr. David W. Robinson of the University of Kansas Medical Center is the author of a paper, "Harelip and Cleft Palate," which was abstracted in the June issue of *Digest of Ophthalmology and Otolaryngology*. The paper was originally published in the *Journal of the Kansas Medical Society*.

* * *

Dr. John W. Unruh has left his practice in Coffeyville to do postgraduate work in Portland, Maine, this summer. Dr. J. J. McDonald, formerly of Brownsville, Texas, and Lawton, Oklahoma, is taking over Dr. Unruh's eye, ear, nose and throat practice in Coffeyville.

* * *

Dr. Austin J. Adams, Wichita, was one of the speakers at the Seventh Annual Minister-Physician conference held at Wesley Hospital, Wichita, recently.

* * *

Dr. D. V. Conwell, Wichita, presented a paper, "Treatment of Mental Disorders in Geriatric Patients," at the annual meeting of the American

Geriatrics Society in Chicago recently. Dr. C. J. Kurth, also of Wichita, collaborated with Dr. Conwell in writing the paper.

* * *

Dr. Lucius Eckles, Topeka, was speaker at a meeting of the Kiwanis Club in Eskridge last month.

* * *

Dr. Howard H. Dunham, associate professor of radiology at the University of Kansas School of Medicine, is moving to Emporia this month to become radiologist at St. Mary's and Newman Memorial Hospitals. He succeeds Dr. Joseph Wepfer, who left the hospitals in Emporia to enter a partnership practice in Wisconsin.

* * *

Dr. K. M. Rottluff, Bonner Springs, announced recently that his practice would be cared for during his vacation by Dr. L. K. May and Dr. E. W. Mitts, who are beginning practice in that community. Both new physicians are graduates of the University of Kansas School of Medicine who have completed residencies at St. Margaret's Hospital, Kansas City.

* * *

Dr. William E. Brownlee, Hutchinson, recently enrolled at the Cook County Graduate School of Medicine, Chicago, for postgraduate courses.

* * *

Dr. Rodney G. Carter, Independence, was guest speaker at a recent meeting of the R. N. Club in that city. His subject was "Electrochemicals in Dysfunctions of the Body."

* * *

Dr. J. T. Swanson resigned as radiologist at Mercy Hospital, Independence, on July 1. His future plans have not been announced.

* * *

Dr. Franklin D. Murphy, Lawrence, was keynote speaker at the first regional institute for medical clinic managers, held at Wichita University late in May. Dr. Fred J. McEwen, Wichita, also took part in the program.

* * *

Dr. E. Russell Jacka, formerly of Halstead, and Dr. David R. Wall are now associated in practice in Wichita. Their work is confined to office psychiatry.

* * *

The Scott City Clinic announces that Dr. E. Cannon Kane is now a member of its staff. Dr. Kane served his preceptorship under Dr. H. Preston Palmer at the clinic a year ago.

* * *

Dr. Farris D. Evans, Wichita, was elected surgeon for the state group of the Veterans of Foreign Wars at a convention held in Hutchinson last month.

* * *

Dr. E. Burke Scagnelli, who has practiced in Jetmore since 1946, has moved to Dodge City and is now associated with the Southwest Clinic. Dr. Girard Veenschoten, who has just completed a general practice residency in Morristown, New Jersey, is beginning practice in Jetmore this month.

* * *

Dr. Herbert A. Wenner, of the University of Kansas Medical Center, spoke on "The Promise of Research" at a meeting of the eastern Kansas district of the National Foundation for Infantile Paralysis held in Kansas City last month.

* * *

Dr. R. T. Nichols, Hiawatha, who completed 50 years of active practice last month, was presented an honorary certificate by Northwestern University, Chicago, at a ceremony held at the university recently.

* * *

Dr. Jack Weaver, Wichita, was guest speaker at a meeting of the Sedgwick County Medical Assistants' Society on June 18.

* * *

Dr. E. E. Brooks, Burden, was honored at a community picnic on June 22. A similar honorary celebration was held last year, and the town now plans to make it an annual event.

* * *

Dr. Lynn Hartman, Arkansas City, director of the Cowley County Health Department, spoke on community responsibility in health matters before the Arkansas City Kiwanis Club on June 18.

* * *

Dr. Charles F. Menninger, founder of the Menninger Clinic and chairman of the board of trustees of the Menninger Foundation, Topeka, observed his 90th birthday on July 11. He began practice in 1906, specializing in internal medicine, and organized the clinic as a father and son partnership in 1919. He remains in good health and continues to be active in foundation affairs.

COUNTY SOCIETIES

Officers of the Sedgwick County Medical Society for the year beginning in January, 1953, were elected at a meeting held in Wichita on May 6. The following were chosen: president, Dr. H. C. Clark; vice president, Dr. L. P. Warren; secretary, Dr. Jack Tiller; treasurer, Dr. H. L. Low; censor, Dr. A. L. Ashmore; members of board of directors for three-year terms, Dr. E. S. Brinton, Dr. G. E. Cowles and Dr. B. P. Meeker.

* * *

A meeting of the Sumner County Society was held at Harry's Cafe, Wellington, recently. Speaker

of the evening was Dr. Henry Tihen, Wichita, whose subject was "The Doctor's Role in Government."

* * *

Members of the Riley County Society were hosts to the Golden Belt Medical Society at the Manhattan Country Club on July 10.

* * *

The Rush-Ness Society met at the Rush County Memorial Hospital at La Crosse on June 9. Dr. Lloyd Reynolds, Hays, was guest speaker on the subject of gastric and duodenal lesions. A buffet luncheon was served at the close of the meeting.

BLUE SHIELD

Age Problem Looms

Advancing age and increasing utilization of hospital and medical care go hand in hand. This fact has tremendous significance for the future of Blue Cross-Blue Shield.

Here is the problem stated in its broadest terms:

1. The older members, beginning around the age of 55, show a rapidly increasing rate of use of hospital and medical care. Members from 55 to 64 use nearly twice the number of hospital days as those from 35 to 44. Each higher age bracket shows a correspondingly higher use.

2. There is a tendency for more older people proportionately to join and stay with the plan than younger people.

The results of these tendencies lead to an age distribution of members which is more heavily loaded with the higher age brackets than the age distribution of the population as a whole.

This accumulation of older members is not nearly so pronounced in employee group memberships as in community membership (those who join on individual basis), since employee groups have a more balanced age distribution. It should be noted that the higher utilization of community members is not borne by employee groups. Thus the latter enjoy relatively lower dues.

Unless something can be done to correct the age distribution, the incidence of hospital days and medical usage of community members will continue in a constantly rising curve. For example, current estimates indicate that utilization will be 21 per cent higher in six years.

A further aggravation of the problem results from constantly rising hospital costs which have been going up steadily since Blue Cross in Kansas began operation. The combination of increasing use and higher costs always brings about increasing rates to members. This in turn accentuates the trend of attracting the more frequent users of hospital service, the older members, and losing younger ones.

Long Range Planning

The Blue Shield financial position at the present time is encouraging. Blue Shield reserves are satisfactory and the rate structure appears to be adequate for producing modest increases in reserves during 1952 and perhaps in 1953. A somewhat smaller addition to Blue Cross reserves is expected in 1952 than was originally planned for in the rate increase of August, 1951. It is likely that Blue Cross will have to start dipping into its reserves in 1953. However, it should be emphasized that both Blue Cross and Blue Shield are in sound financial position at present which means that both plans have time for long range planning to meet the problems that lie ahead.

But this long range planning must begin to take shape now and it definitely involves the understanding and cooperation of the medical profession. Here are some of the possible courses which must be weighed and discussed with all concerned—the doctors, the hospitals and the members:

1. More Emphasis on Economy—Reduction of use through a better understanding by doctors, hospitals and members could ameliorate the trend toward poor age distribution to a considerable extent.

2. Tighter Enrollment Regulations—The method of enrolling members undoubtedly has a bearing on the utilization curve. Revised enrollment regulations may help to create a better spread of risk and a better distribution of ages in the membership.

3. Contractual Controls—By this is meant the introduction of certain limitations in the member's contract which will discourage hospital usage for minor conditions or for diagnostic work-ups which may be taken care of in visits to doctors' offices. A deductible feature may be the best way of achieving this deterrent.

Cooperation Urged

These and other possible solutions are being intensively studied by Kansas Blue Cross-Blue Shield. The medical profession will be kept informed and will be asked to participate actively in the development of future courses of action. The cooperation of the profession is urgently needed today and tomorrow. Your individual counsel and opinions will be appreciated.

All advertisements appearing in the Journal are carefully screened. Our standards are of the highest. The advertisers like our Journal—that's why they selected it for use in their promotional programs. They seek your patronage, and your response encourages continued use of our publication. When you send inquiries, tell the advertisers that you read their advertisement in the Journal of the Kansas Medical Society.

Senior Thesis from the University of Kansas Medical School*

The Coxsackie Viruses**

Robert G. Wood, M.D.

Kansas City, Kansas

In 1948 Dalldorf and Sickles reported the isolation of an unidentified filterable agent from the feces of two children with paralysis. The agent, since proven to be a virus, is peculiar in that in the laboratory it is pathogenic only for suckling mice and hamsters. More recently, however, oral or parenteral inoculation in the cynomolgus monkey and chimpanzee has been reported to produce an "inapparent infection with fever after four to nine days." The virus has been recovered from the pharyngeal secretions and feces of these animals, and both the monkey and chimpanzee have specific neutralizing antibodies in the serum for periods up to six months. The viruses have also been recovered from sewage, flies, and throat swabs of human beings.

Twenty-eight strains have been isolated to date. These are divided into two groups, depending upon the lesions produced in suckling mice, and are called the Coxsackie viruses.

Group A contains 20 strains with at least seven serologically distinct sub-groups. Shortly after inoculation these strains produce rapidly progressive flaccid paralysis of all skeletal muscles. Death usually follows in less than 48 hours. Microscopically, skeletal muscles show diffuse and extreme degeneration followed by round cell infiltration and proliferation of sarcolemma nuclei. However, these lesions are not pathognomonic. The myocardium is not involved and central nervous system lesions are rare, although the virus is present in the brain.

The eight strains in Group B are serologically related. They are characterized by producing large areas of cystic degeneration and necrosis in the brain. The muscular lesions they produce in suckling mice are less severe than those produced by the Group A strains.

Laboratory cultures are maintained by repeated inoculations in suckling mice or hamsters. Macerated brain tissue has been found to be one of the best inocula. Slater and Syverton have shown that after 16 passages the organism is still lethal for 58 per cent of the mice inoculated. Passive immunity is obtained through the mother's milk or by inoculation of the mother during gestation. Immunity to one strain does not confer immunity to the other strains. Melnick has shown that the virus can be neutralized by homologous immune serum but not by hyperimmune serum from poliomyelitis, mouse encephalitis, mumps, herpes simplex, lymphocytic choriomeningitis, encephalomyocarditis, louping ill, Venezuelan equine encephalitis, or New Castle disease.

The organism is resistant to ether, penicillin, streptomycin, chloromycetin, heating for 30 minutes in water at 55 degrees centigrade, or freezing in water for eight months at minus 70 degrees centigrade. It is inactivated in water heated to 60 degrees centigrade for 30 minutes.

Serum reacting to Group A strains is common among adults of the New England states and pooled adult serum from that region effectively neutralizes A strains of Coxsackie viruses.

Early articles frequently left the reader with the impression that the association of the various syndromes and the Coxsackie viruses was clear-cut, but it was not until 1950 that the fourth Koch postulate was fulfilled. At that time Shaw, Melnick, and Curnen reported the infection of six laboratory workers with Coxsackie viruses, all six cases associated with breaks in technique of handling laboratory specimens.

At the present time, Coxsackie viruses are being considered as the probable etiological agent for at least three clinical syndromes. These are all characterized by an abrupt onset of symptoms, the most prominent of which are headache and fever. The duration of symptoms is usually less than one week, frequently lasting less than 24 hours. All three syndromes are most commonly seen as summer epidemics with a predilection for children and young adults, although older age groups are also occasionally affected. Coxsackie viruses have been isolated from stool specimens of patients in the acute phase of disease during epidemics of each of the three syndromes. Those patients with positive fecal tests have also been shown to have a rising antibody titer for the particular strain of Coxsackie virus isolated.

Coxsackie viruses were first associated with epidemics of poliomyelitis, and several of the more recent writers have commented upon the close relationship of these two viruses. However, immunity to one does not confer immunity to the other, and at the present time they are considered to present two separate clinical syndromes. That caused by the Coxsackie viruses has been termed "aseptic menin-

*This is one of 11 senior theses selected for publication by the Editorial Board from a group of 15 judged the best by the faculty of the University of Kansas School of Medicine.

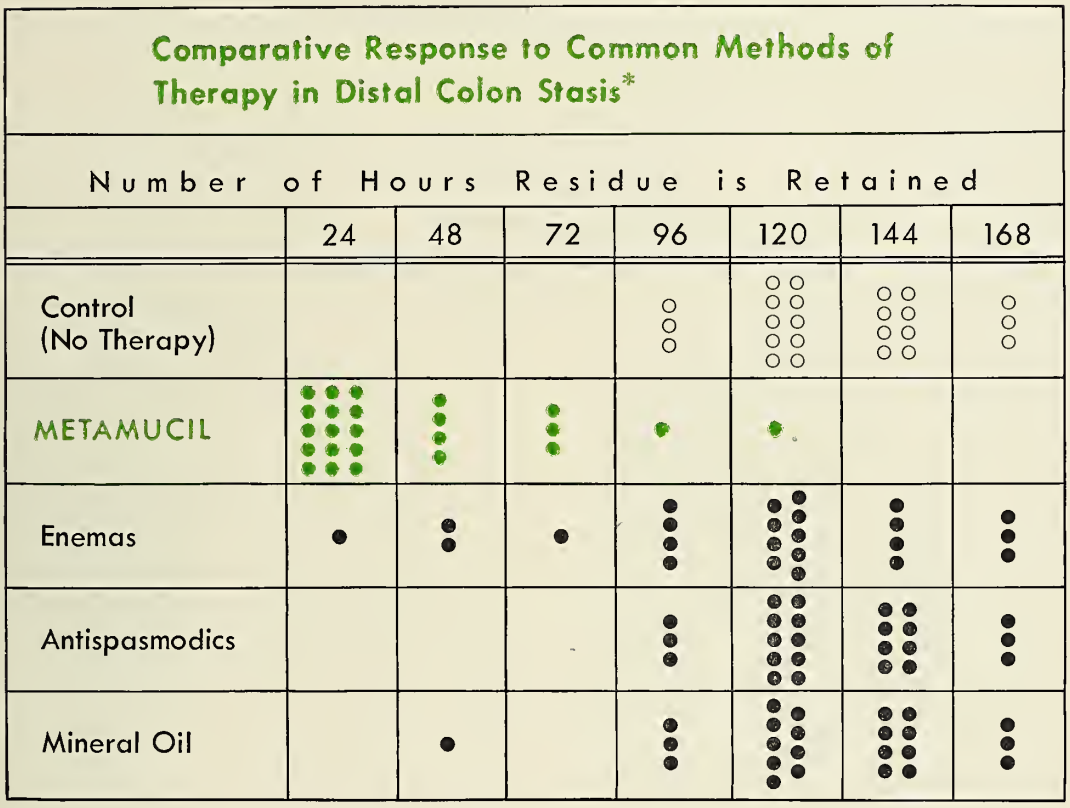
**Thesis written while the author was a senior student at the University of Kansas School of Medicine. Dr. Wood is now serving his internship at Providence Hospital, Kansas City, Kansas.

METAMUCIL®

Effective in Distal Colon Stasis*

"A roentgenographic evaluation of the common methods of therapy . . . demonstrated that . . . a mucilloid substance (Metamucil) has been most effective in the most prevalent [type of colonic stasis], distal colon stasis. . . . Enemas gave good results in rectal stasis only. Mineral oil had very little effect. Antispasmodics and sedatives had no efficacy. . . . It was found that the use of habit forming cathartics may be avoided in most instances."*

Comparative Response to Common Methods of Therapy in Distal Colon Stasis*



METAMUCIL® is the highly refined mucilloid of Plantago ovata (50%), a seed of the psyllium group, combined with dextrose (50%) as a dispersing agent.

*Barowsky, H.: A Roentgenographic Evaluation of the Common Measures Employed in the Treatment of Colonic Stasis, Scientific Exhibit, National Gastroenterological Association, Chicago, Sept. 17-22, 1951.

RESEARCH IN THE SERVICE OF MEDICINE SEARLE

gitis," but is is also known as "non-paralytic poliomyelitis," "acute meningoencephalitis," "three day fever," and "summer grippe." Curnen, Shaw, and Melnick have shown that epidemics of aseptic meningitis occur earlier in the summer than those of acute poliomyelitis. The former reaches a peak incidence during July and early August while the latter is most prevalent during the last part of August and September. The incubation period averages about five days.

The disease is characterized by a sudden onset of headache, fever, and nausea. Within 24 hours signs of meningeal irritation become prominent. Vomiting and abdominal pain occur in about 50 per cent of the cases. Other symptoms seen less frequently include neck pain, malaise, myalgia, backache, and muscular weakness.

The temperature is usually about 100° F. Physical examination usually shows the patient to have a stiff neck and back. Kernig's sign is sometimes positive, but deep tendon reflexes are normal and Babinski's sign is absent. Some patients also show a transient weakness of the legs and thighs. Antibiotics have proven ineffective, but the infection is self-limited. The acute phase lasts 18 to 36 hours and the patient is usually symptom-free in four to six days. Examination of the cerebrospinal fluid shows normal manometrics, protein, and sugar with pleocytosis; the maximum number of cells varies from 25 to 125. The blood picture is within normal limits except for the white cell count which may vary from 3,000 to 13,000 cells with a normal differential count.

Blood tests three to four weeks after the onset of symptoms show a high titer of neutralizing antibodies for the virus isolated from acute phase fecal specimens.

The second syndrome is herpangina. This has been a clinical entity since 1924 when Zahorsky first proposed the term for "a specific febrile disease characterized by the appearance of minute papules, vesicles and ulcers in the throat." Children under the age of 10 years are most commonly infected. The disease occurs in epidemics marked by an acute onset of fever, anorexia, dysphagia, and sore throat. The symptoms last for one to four days. Positive physical findings are limited to lesions on the tonsillar pillars and soft palate. They start as grayish-white papulo-vesicular spots one to two millimeters in diameter. Each lesion is surrounded by an erythematous areola. Rupture of the vesicle produces a shallow gray ulcer. A maximum of four to twelve vesicles is formed.

The disease is self-limited and shows a high incidence among siblings. Blood and cerebrospinal fluid findings are within normal limits. Treatment is symptomatic. Antibiotics have proven ineffective in lessening the severity of symptoms or shortening the course of the disease.

This disease is often confused with acute herpetic gingivostomatitis, but scrapings from the lesions do not produce kerato-conjunctivitis in rabbits, as do those from herpetic pharyngeal lesions. Herpetic infections seldom occur in epidemic form and are found on the buccal mucosa. They are painful while those of herpangina have been described as being painless.

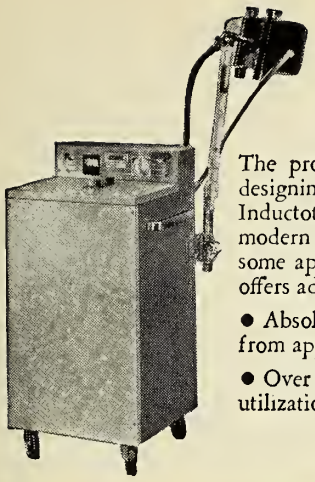
Pleurodynia is the third clinical syndrome in which the Coxsackie viruses are implicated. This condition is also known as "epidemic myalgia," "Bornholm Disease," and "devil's grip."

This disease is also one that occurs as a summer epidemic of children and young adults. According to MacDonald the symptoms that occur most commonly, listed in the order of decreasing frequency are: fever, pain, malaise, headache, constipation, nausea, and vomiting.

The pain, described as "burning," "knife-like," occurs in paroxysms and may be located in the chest, abdomen, or back. It is aggravated by deep breathing or exercise. In the 1937 Cincinnati epidemic of 70 reported cases, more than 50 per cent of the children had abdominal pain only. It was most frequently epigastric in location. However, Butsch and Harberson report a series of 50 cases of acute onset of pain similar to that of acute appendicitis. The epidemic occurred among children and young adults. After doing several appendectomies and finding no pathology, the cases were re-evaluated. They found that the patients had conjunctivitis, the soft palate was "entirely covered with a raised plaque of edematous mucous membrane of a salmon pink color." The pain started to the right of the umbilicus, in the region of McBurney's point or below the costal border in the right midclavicular line. It did not shift in location. True muscle spasm was absent and tenderness was commonly found along the distribution of the 10th intercostal nerve. Leukocytosis was absent and the differential count was normal. They concluded that their problem was one of acute virus infection with nerve root involvement. The etiological agent was not demonstrated.

The paroxysms of pain subside after 12 to 24 hours. However, recurrence of pain is common, usually on the third or fourth day. Some children have three or more recurrences, and Nichamin is of the opinion that "the infected person appears to have an inherited susceptibility to repeated attacks of the disease, which are precipitated by various excitant factors."

Howard, et al., report symptoms of meningoencephalitis during the Brooklyn epidemic of 1942. They had eight patients under the age of two years



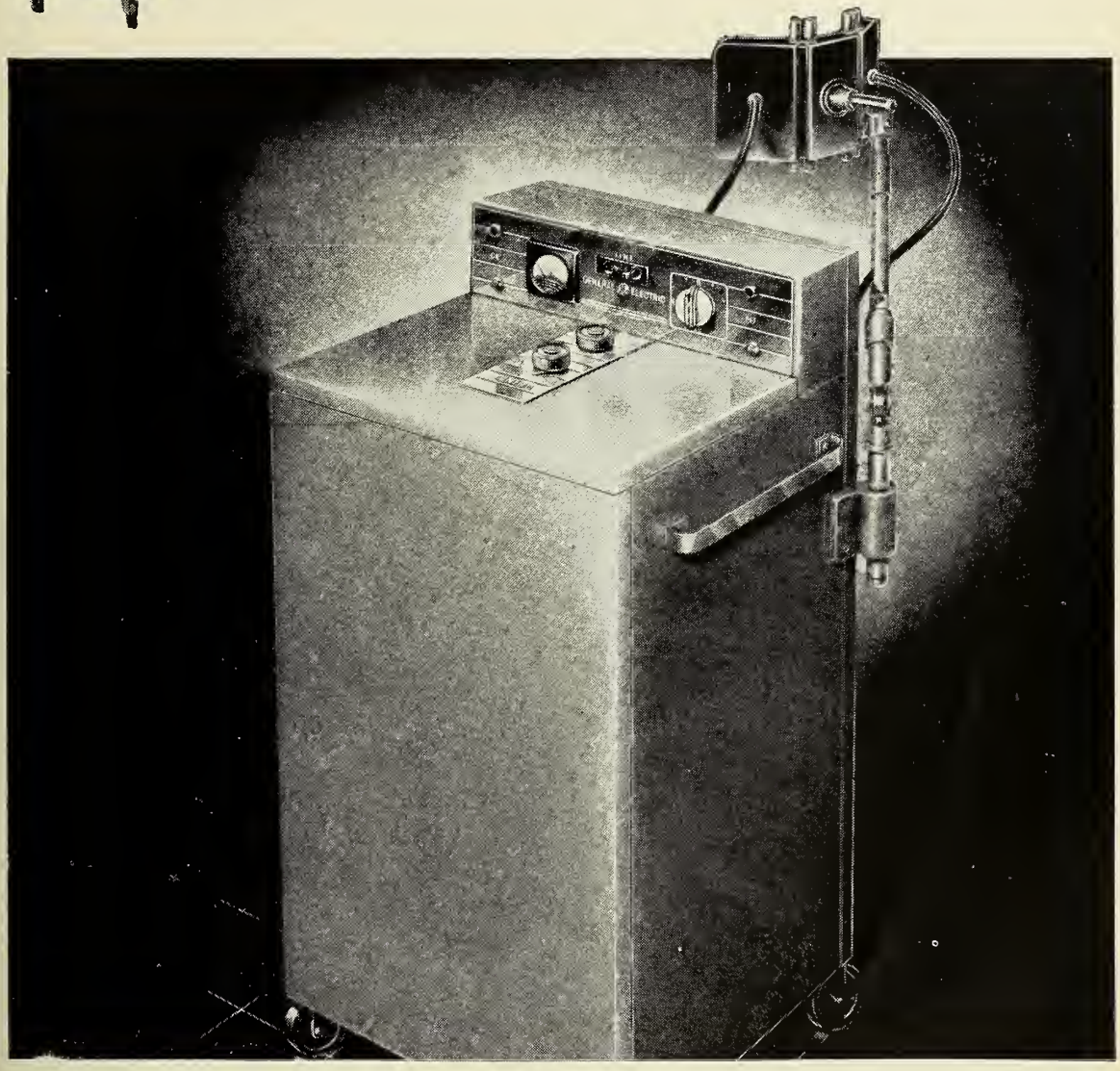
General Electric announces... a new, improved Inductotherm

The product of complete restyling and redesigning, General Electric's new Model F Inductotherm meets every requirement for modern diathermy technics. More than handsome appearance, this scientific development offers advanced features like these:

- Absolute crystal control limits variation from approved frequency to less than 0.05%.
- Over 200 watt output — for most efficient utilization of induction heating methods.
- Provision for three types of electrodes — contour, cable and air-spaced.
- Surgical facilities, now an integral part of the unit, for all medium and light technics.

Ask your GE x-ray representative for all the facts on the Model F, the Inductotherm apparatus that *fully* meets today's needs.

GENERAL ELECTRIC



Direct Factory Branch: **1114 Grand Avenue, KANSAS CITY, MO.**

and all eight had convulsions. None of the patients over the age of two years had a convulsion, but headache, apathy, vertigo, and photophobia occurred in five cases.

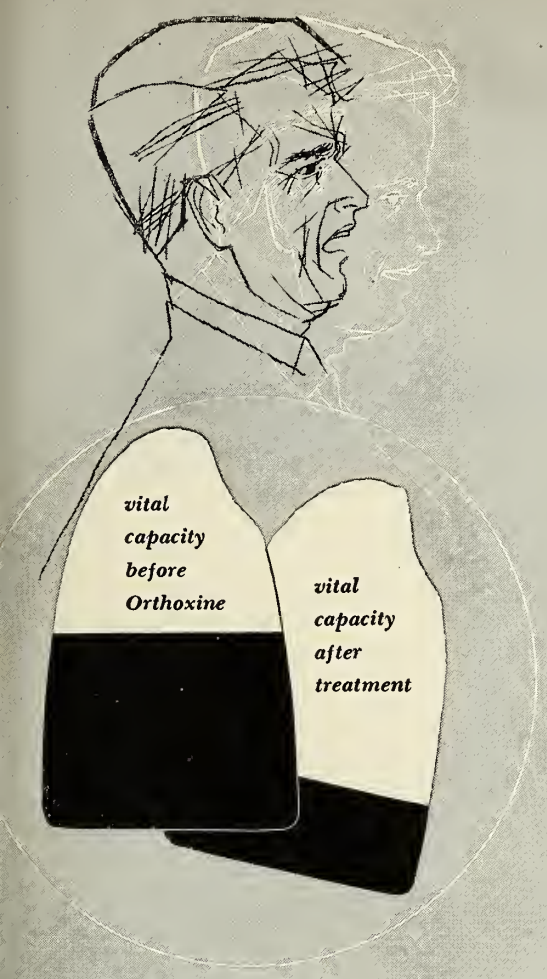
Biopsy of intercostal muscles in the acute phase has failed to reveal any pathology. The virus could not be demonstrated in the tissue so obtained.

Summary

Twenty-eight strains of Coxsackie virus have been isolated and their classification is described. They are peculiar in that the only laboratory animals for which they are pathogenic are suckling mice and hamsters. Three clinical syndromes have been discussed in which these viruses are thought to be the etiological agent. All three diseases are characterized by the fact that they occur as summer epidemics of children and young adults. They have a sudden onset with fever and headache or pain as prominent symptoms. The duration is short and the infections are self-limited. Coxsackie viruses have been isolated from stool specimens in the acute phase of all three, and a rise in the titer of neutralizing antibodies for the isolated organism occurs.

Bibliography

1. Beeson, P. B.: Epidemic Pleurodynia, in Harrison, T. R.: Principles of Internal Medicine, Ed 1, Philadelphia, The Blakiston Company, 1950, pp. 34, 1172.
2. Bell, J. A., Beck, M. D., and Heubner, R. J.: Epidemiological Studies of Q Fever in Southern California, J.A.M.A. 142: 867-872 (March 25) 1950.
3. Black, W. C.: The Etiology of Acute Infectious Gingivostomatitis (Vincent's Stomatitis), J. Ped. 20: 145-160 (February) 1942.
4. Breese, Jr., B. B.: Aphthous Pharyngitis, Am. J. Dis. Child. 61: 669-674 (April) 1941.
5. Butsch, W. L., and Harberson, J. C.: Acute Virus Infection With Nerve Root Involvement Simulating Appendicitis, J.A.M.A. 123: 405-407 (16 October) 1943.
6. Casal, J., Olitsky, P. K., and Murphy, L. C.: Hemagglutination and Complement Fixation With Type I and II Albany Strains of Coxsackie Virus, Proc. Soc. Exper. Biol. Med. 72: 636-638 (December) 1949.
7. Cecil, R. L.: A Textbook of Medicine, Ed 7, Philadelphia, W. B. Saunders Company, 1947, pp. 77-78.
8. Commission on Acute Respiratory Diseases: Epidemics of Q Fever Among Troops Returning from Italy in the Spring of 1945. III. Etiological Studies, Am. J. Hyg. 44: 103-109 (July) 1946.
9. Curnen, E. C.: Human Diseases Associated With The Coxsackie Viruses, Bull. New York Acad. Med. 26: 335-342 (May) 1950.
10. Curnen, E. C., Shaw, E. W., and Melnick, J. L.: Disease Resembling Non-Paralytic Poliomyelitis Associated With a Virus Pathogenic For Infant Mice, J.A.M.A. 141: 894-901 (November 26) 1949.
11. Dalldorf, G.: The Coxsackie Viruses, Bull. New York Acad. Med. 26: 329-335 (May) 1950.
12. Dalldorf, G.: The Coxsackie Group of Viruses, Science 110: 594 (December 2) 1949.
13. Dalldorf, G., and Sickles, G. M.: An Unidentified, Filterable Agent Isolated From the Feces of Children With Paralysis, Science 108: 61-62 (July 16) 1948.
14. Dalldorf, G., Sickles, G. M., Player, H., and Gifford, R.: A Virus Recovered From the Feces of "Poliomyelitis" Patients Parhogenic for Suckling Mice, J. Exper. Med. 89: 567-582 (June) 1949.
15. Denlinger, R. B.: Clinical Aspects of Q Fever in Southern California; A Study of 80 Hospitalized Cases, Ann. Int. Med. 30: 510-527 (March) 1949.
16. De Rodaniche, E. C., and De Rodaniche, A.: Studies on Q Fever in Panama, Am. J. Hyg. 49: 67-75 (January) 1949.
17. Dodd, K., Johnston, L. M., and Buddingh, G. J.: Herpetic Stomatitis, J. Ped. 12: 95-102 (January) 1938.
18. Dummer, C. M., Lyon, R. A., and Srevenson, F. E.: Benign Lymphocytic Meningitis (Aseptic Meningitis), J.A.M.A. 108: 633-636 (February 20) 1937.
19. Editorial: Coxsackie Viruses, Ann. Int. Med. 34: 257-263 (January) 1951.
20. Editorial: Epidemic Myalgia, or Pleurodynia, J.A.M.A. 102: 460-461 (February 10) 1934.
21. Feinstein, M., Yesner, R., and Marks, J. L.: Epidemics of Q Fever Among Troops Returning From Italy in The Spring of 1945. I. Clinical Aspects of The Epidemic at Camp Patrick Henry, Virginia. Am. J. Hyg. 44: 72-87 (July) 1946.
22. Gellis, S.: Pleurodynia in Nelson, W. E.: Textbook of Pediatrics, Ed 5, Philadelphia, W. B. Saunders Company, 1950, pp. 653.
23. Goodpasture, E. W.: Herpetic Infection, With Especial Reference to Involvement of The Nervous System, Medicine 8: 223-243 (May) 1929.
24. Gordon, B.: Diseases of Pleura in Piersol, GM M.: The Cyclopedia of Medicine, Surgery, Specialties, Ed 1, Philadelphia, F. A. Davis Company, 1951, pp. 776-778.
25. Harder, F. K.: Epidemic Myalgia or Pleurodynia in Southwestern Ohio, Am. J. M. Sc. 191: 678-685 (May) 1936.
26. Heubner, R. J., Armstrong, C., Beeman, E. A., and Cole, R. M.: Studies of Coxsackie Viruses, J.A.M.A. 144: 609-613 (October 21) 1950.
27. Heubner, R. J., Cole, R. M., Beeman, E. A., Bell, J. A., and Peers, J. H.: Herpangina, J.A.M.A. 145: 628-633 (March 3) 1951.
28. Heubner, R. J., Jellison, W. L., and Beck. M. D.: Q Fever —A Review of Current Knowledge, Ann. Int. Med. 30: 495-509 (March) 1949.
29. Howard, T., Weymuller, C. A., Edson, J., Ittner, E., Watson, J., and Cassidy, M. L.: Epidemic Pleurodynia in Brooklyn in the Summer of 1942, J.A.M.A. 121: 925-929 (March 20) 1943.
30. Humbert, W. C., Tucker, C. B., Mosely, K. T., and Bishop, L. K.: An Epidemic of an Acute Meningo-encephalitis in Giles County, Tennessee: An Unusual Disease, Am. J. Pub. Health 37: 564-569 (May) 1947.
31. Hyman, H. T.: An Integrated Practice of Medicine, Ed 1, Philadelphia, W. B. Saunders Company, 1946, pp. 403-406.
32. Jaworski, A. A., and West, E. J.: Aseptic Meningitis of New Virus Origin, J.A.M.A. 141: 902-904 (November 26) 1949.
33. Levine, H. D., Hoerr, S. O., and Allanson, J. C.: Vesicular Pharyngitis and Stomatitis, J.A.M.A. 112: 2020-2022.
34. Long, P. H.: Herpetic Pharyngitis and Stomatitis. A Report of Three Cases, J. Clin. Invest. 12: 1119-1125 (November) 1933.
35. MacDonald, R. R.: Epidemic Myalgia or Pleurodynia, Penn. M.J. 41: 919-920 (July) 1938.
36. MacDonald, R. R., Hewell, B., and Cooper, M. L.: Epidemic Myalgia or Pleurodynia. Clinical and Bacterological Studies, Am. J. Dis. Child. 53: 1424-1434 (June) 1937.
37. Melnick, J. L.: Studies On The Coxsackie Viruses. Properties, Immunological Aspects and Distribution in Nature, Bull. New York Acad. Med. 26: 342-356 (May) 1950.
38. Melnick, J. L., Ledinko, N., Kaplan, A. S., and Kraft, L. M.: Ohio Strains of A Virus Pathogenic for Infant Mice (Coxsackie Group.) Simultaneous Occurrence With Poliomyelitis Virus in Patients with "Summer Grippe," J. Exper. Med. 91: 185-195 (February) 1950.
39. Nichamin, S. J.: Clinical And Epidemiological Aspects of Epidemic Pleurodynia, J.A.M.A. 129: 600-605 (October 27) 1945.
40. Nichamin, S. J.: Pleurodynia in Children, J.A.M.A. 148: 1002-1004 (March 22) 1952.
41. Oliphant, J. W., Gordon, D. A., Meis, A., and Parker, R. R.: Q Fever In Laundry Workers, Presumably Transmitted From Contaminated Clothing, Am. J. Hyg. 49: 76-82 (January) 1949.
42. Parrott, R. H., Ross, S., Burke, F. G., and Rice, E. C.: Herpangina. Clinical Studies Of A Specific Infectious Disease, New England J. Med. 245: 275-280 (August 23) 1951.
43. Plattner, R. J.: Herpangina, J. Ped. 39: 635-637.
44. Quigley, J. J.: Ultrafiltration and Ultracentrifugation Studies of Coxsackie Virus, Proc. Soc. Exper. Biol. Med. 72: 434-435 (November) 1949.
45. Robbins, F. C., Gauld, R. L., and Warner, F. B.: Q Fever in The Mediterranean Area: Report of Its Occurrence in Allied Troops. II. Epidemiology, Am. J. Hyg. 44: 23-50 (July) 1946.
46. Robbins, F. C., and Ragan, C. A.: Q Fever In The Mediterranean Area: Report of Its Occurrence in Allied Troops. I. Clinical Features Of The Disease, Am. J. Hyg. 44: 6-23 (July) 1946.
47. Robbins, F. C., and Rustigan, R.: Q Fever In The Mediterranean Area: Report Of Its Occurrence In Allied Troops. IV. A Laboratory Outbreak, Am. J. Hyg. 44: 64-71 (July) 1946.
48. Robbins, F. C., Rustigan, F., Snyder, M. J., and Smodel, J. E.: Q Fever In The Mediterranean Area: Report Of Its Occurrence In Allied Troops. III. The Etiological Agent, Am. J. Hyg. 44: 51-63 (July) 1946.
49. Sabin, A. B., and Steigman, A. J.: Poliomyelitis Virus Of Low Virulence In Patients With Epidemic "Summer Grippe or Sore Throat," Am. J. Hyg. 49: 176-193 (March) 1949.
50. Scott, T. F. McN., and Steigman A. J.: Acute Infectious Gingivostomatitis, J.A.M.A. 117: 999-1005 (September 20) 1941.
51. Shaw, E. W., Melnick, J. L., and Curnen, E. C.: Infection Of Laboratory Workers With Coxsackie Viruses, Ann. Int. Med. 33: 32-40 (July) 1950.
52. Sickles, G. M., and Dalldorf, G.: Serologic Differences Among Strains Of The Coxsackie Group Of Viruses, Proc. Soc. Biol. Med. 72: 30-31 (October) 1949.
53. Silverthorne, N., Goodfellow, A. M., Anglin, C., Rhodes, A. J., Roy, T. E., and Snelling, C. E.: Non-Paralytic Poliomyelitis (Some Observations On Differential Diagnosis) Canad. M.A.J. 60: 356-359 (April) 1949.
54. Sluter, E. A., and Syverton. J. T.: The Cultivation of Coxsackie Virus, Proc. Soc. Exper. Biol. Med. 74: 509-510 (July) 1950.
55. Smandel. J. F.: The Practitioner And The Virus Diagnostic Laboratory, J.A.M.A. 136: 1079-1081 (April 24) 1948.



an answer to asthma

Q. Is there a sympathomimetic agent that will give relief from asthma without causing vasopressor and psychomotor stimulation?

A. Orthoxine Hydrochloride provides bronchodilatation with minimal vasopressor and psychomotor stimulation. By modifying the configuration of a sympathomimetic amine molecule, the action of Orthoxine has been centered mainly upon bronchodilatation, thereby minimizing side-effects arising from vasopressor or psychomotor-stimulating activity.

Orthoxine*

HYDROCHLORIDE

BRAND OF METHOXYPHENAMINE

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

Bottles of 100 and 500 tablets.

Orthoxine Hydrochloride (100 mg.) tablets contain *beta-(ortho*-methoxyphenyl)-isopropyl-methylamine hydrochloride, a bronchodilator and antispasmodic.

For Adults: ½ to 1 tablet (50 to 100 mg.)

For Children: half the dose

For Both: Repeat every 3 to 4 hours as required

**Trademark, Reg. U. S. Pat. Off.*

Upjohn *Medicine . . . Produced with care . . . Designed for health*

THE UPJOHN COMPANY, KALAMAZOO, MICHIGAN

56. Webb, C. H., and Wolfe, S. G.: "Three Day Fever" Am. J. Dis. Child. 80: 245-253 (August) 1950.
57. Webb, C. H., Wolfe, S. G., and Simpson, V.: Clinical Features of A Summer Disease (Three Day Fever) Apparently of Virus Etiology, New Orleans M & S J. 101: 249-255 (December) 1948.
58. Welborn, M. B.: Epidemic Pleurodynia (Devil's Grip) in Cincinnati, Am. J. M. Sc. 191: 673-678 (May) 1936.
59. Yater, W. M.: Fundamentals of Internal Medicine, Ed 3, New York, Appleton-Century-Crofts, Inc. 1949, p. 858.
60. Youmans, J. B.: Herpetic Fever With Stomatitis: Report And Discussion of A Case In Which the Virus Was Isolated, South. M.J. 25: 228-233 (March) 1932.
61. Zahorsky, J.: Herpangina, Arch. Ped. 41: 181-184 (March) 1924.
62. Zahorsky, J.: Herpetic Sore Throat, South. Med. J. 13: 871-872 (December) 1920.

A.M.A. Meeting

On June 13, 1952, the 101st annual convention of the American Medical Association, held in Chicago, came to a close. It was a very memorable occasion for several reasons, first, I think, because of the enormity of the affair, and the careful sectionization which permitted each doctor to single out what he preferred or needed most in his practice. The emphasis, of course, was constantly toward better care of those who are unfortunate enough to be ill. Navy Pier, which is an enormous building, was filled from end to end with scientific and commercial exhibits with about eight or nine rooms left for sectional meetings, television, and moving pictures. Despite the size of the meeting, things were conveniently arranged and the floor plan was certainly set up for general convenience. Some of the surgical sections and other specialties had to be held elsewhere for lack of room.

The House of Delegates met every day except Tuesday, which was devoted to reference committee hearings where all resolutions are worked over, and your delegates appeared before two. These proved most interesting and instructive. Occasionally a comment came from us which might have been helpful in crystalization of majority opinion. Surely the degree of intellectual approach which pervaded these hearings was indeed inspiring. This democratic method of getting facts, weighing evidence and arriving at an erudite and dignified conclusion, has proved superior in this realm, and I hope it will continue throughout my tenure of office as a delegate from Kansas. A quote here from the Washington Report on medical sciences seems apropos:

"It was decidedly an exciting convention, what with the Magnuson squabble and renewal of arguments over the wisdom of the Whitaker and Baxter campaign and warm electioneering for the office of president elect and many other divisions of opinion. It reaffirmed the role of organized medicine as a militant participant in national politics, and expressed anew its dissatisfaction with Mr. Truman, Mr. Ewing, and 'Socialized Medicine'."

The political reference was to House Resolution 7800, which has now passed the House with a revamped Section 3. The revamping was supposedly done to satisfy A.M.A. objections, but it failed to do so, because it is only another evidence of the Administration's and Mr. Ewing's effort to socialize medicine by hooking on a joker to an otherwise good bill. It would subject the entire aged and indigent care to complete bureaucratic domination. It was another flank attack which our Washington office was quick enough to catch. The bill has passed the House and is now to go to the Senate.

Care of non-service connected ills of veterans again came in for its share of discussion, and we believe an awareness of its evils may now be more apparent, even to the veterans' organizations themselves, so that we hope that changes for better screening may eventuate.

For the first time in the history of the American Medical Association House of Delegates, the American Osteopathic Association was brought into the forefront. There are desires, of course, on the part of osteopaths all over the United States to have full privilege of practicing medicine and surgery. The end result of the hearing before the committee and its actions was to the effect that if the American Osteopathic Association or any of its schools ask for help in the elevation of educational standards, that help would be given by medical men. The question of medical doctors teaching in such schools received favorable comment eventually, though that portion of the resolution was expunged.

Our participation actively in politics was recognized as an absolute necessity. Your delegates believe that the voluntary help in our present political campaign in Kansas as outlined by a special committee of individuals is most appropriate and that its importance cannot be overestimated. If we fail to achieve the best possible medical care for the people of Kansas, it will be because we fail as individual doctors to carry out the program.

Our parent organization is growing and taking an increasingly important place, not only in the scientific care of the sick and the art and practice of medicine, but also in the councils of many lay organizations, and this is as it should be. It was gratifying to see more Kansas doctors in attendance at the A.M.A. 101st convention than have attended since we have been delegates. It is to be hoped that all had a pleasant as well as an intellectually profitable experience.

In the field of entertainment, the Illinois State Medical Society, the Chicago Medical Society, and Armour and Company treated the delegates to a delightful dinner, preceded by cocktails and a two-hour vaudeville entertainment which was of the very highest quality. It was indeed a very fine gesture, highly appreciated by all who attended.

Still leading the family foursome

right through the menopause

ON ORAL ESTROGEN THERAPY

THAT IMPARTS ***NO ODOR,***

NO TASTE, NO AFTERTASTE



FIRST, explain away her fears of the transition and assure her you can relieve her physical symptoms. Then, to prove your point, prescribe SULESTREX. Newest advance in the field, SULESTREX is as effective estrogen therapy as science has yet created. It is a *pure* estrone salt, stable and reproducible. There are no urinaceous ingredients to taint her breath or perspiration, even when therapy is intense, prolonged.

From two recent reports:

"*. . . a potent and effective oral estrogen with an extremely low incidence of nausea.*"[1]

"*. . . all patients noted a marked sense of well-being, and commented on their ability to resume normal activity with amazing vigor.*"[2]

Other studies have shown that you can expect constant, predictable results with SULESTREX with relatively few side-effects. Try this effective, esthetic therapy on your next menopausal patient. Available at all pharmacies in 0.75-, 1.5- and 3-mg. grooved tablets. Send for literature. Abbott Laboratories, North Chicago, Illinois. Abbott

1. *Perloff, Wm. H. (1951), Treatment of the Menopause. II. American J. Obst. & Gynec., 61:670, March.* 2. *Reich, W. J., et al. (1951), A Recent Advance in Estrogen Therapy. I. American J. Obst. & Gynec., 62:427, August.*

Sulestrex TRADE MARK

Piperazine tablets

(PIPERAZINE ESTRONE SULFATE, ABBOTT)

Dr. Louis H. Bauer of Hempstead, New York, was installed at the inaugural ceremony which was broadcast and perhaps many of our members heard his inspiring and fiery address which was cordially received. Copies of this are available and are well worth the attention of everyone.

The interim session of the American Medical Association should be well attended by Kansas physicians because it will be held in Denver, Colorado, early next December. These carry a program always designed particularly for general practitioners, and I am sure it will be worth attending on the part of anyone and everyone in our society.

L. S. Nelson, M.D.
Delegate from Kansas

BOOK REVIEWS

Dynamic Psychiatry. Transvestism—Desire for Crippled Women. By Louis S. London. Published by Corinthian Publications, New York. 129 pages. Price $2.50.

The book itself is divided into three parts, the first part being anthropological and historical. Part two consists of 50 drawings made by the patient himself, and part three consists of an analysis of the case. The book is concise and interesting. It deals with two subjects that are relatively unusual to psychiatrists. Specifically, it deals with two subjects: (1) transvestism, which is a desire for a person to dress as a member of the opposite sex; and (2) a desire for crippled women.

The book points out that transvestism has existed in the literature from the time of Nero and is reported in the Greek and Mongol races of ancient history, as well as in many other races. The use of a physical difficulty or deformity serving as a fetish has been recorded in the literature of Krafft-Ebing and others. The author's patient gives a continued analysis and produces recollections from his fourth year of life when he wanted to be girl; and, shortly after that, he became fixated on his mother's shoes and on being a cripple.

The psychodynamics, as presented by the author, consisted of an unresolved Oedipus complex; the patient attempts to castrate himself and become a female; being unable to do this, he identified with a cripple and wanted to marry a cripple. Throughout the case is a considerable amount of homosexuality in that, when he masqueraded as a crippled woman, he wanted to be accosted by men. Other ailments present in this patient are exhibitionism, sadism, and masochism.

The main criticism of the case is that it tends to be somewhat sketchy and one has the feeling that he would like to know more of this child's relationships to his mother in regard to his early life and things that are not strictly sexual. With the exception of this minor criticism, the book is well written and is a worthwhile addition to the literature concerning sexual deviations.—*P.C.L.*

* * *

Textbook of Pharmacology. By William T. Salter. Published by W. B. Saunders Company, Philadelphia. 1240 pages, 284 figures. Price $15.

This newest addition to the textbook literature of pharmacology is a well-printed, nicely-bound volume, which on the whole is quite readable.

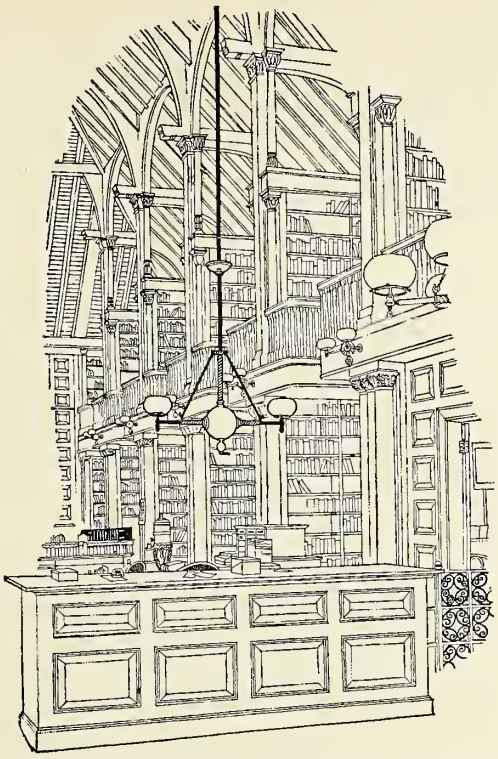
The book bears the earmarks of a work too hastily done and presents numerous drawbacks to its use as either a textbook for the medical student or as a reference for the general practitioner. Arrangement of subject matter is not such as to add clarity and too frequent referral from chapter to chapter is necessary for a complete discussion of many agents. In various portions the text not only lacks clarity but is actually confusing, especially so from the viewpoint of one encountering the subject for the first time. Frequent interjection of "extra matter" which either adds nothing concrete to the discussion at hand or is left "hanging in thin air" detracts from an otherwise interestingly written text. Actual errors of fact exist but are no more frequent than one might expect to find in a first edition. Tables and figures, which are numerous, lack originality and are frequently too involved to be good teaching aids; moreover, legends or explanations in the text are often woefully inadequate. Considerable pagination could have been saved in a book of this magnitude by a more careful attention to size and spacing of the various figures.

The reviewer cannot go along with some of the mental meanderings of the author, and, for example, has no sympathy for his relegation of present-day hypotheses of drug action to the limbo of mythology. This, at best, only clouds the real issues at hand, and gives the student a feeling of "superficiality" concerning the subject of pharmacology.

Considering the relatively high cost of this book, its various shortcomings and the other texts available on the subject, this work, in its present edition, cannot be recommended as a textbook for students or as a reference work for the general practitioner.—*R.E.G.*

Live birth in the United States last year soared above 3,800,000 for the second time in history, and topped the 1950 birth total by more than 200,000, according to a recent release from the Public Health Service. The annual birth rate for 1951, based on registered births alone, rose to 24.5 per thousand population, an increase of 4.3 per cent over 1950. The infant mortality rate dropped for the 15th straight year.

New aureomycin minimal dosage for adults—four 250 mg. capsules daily, with milk.



Interior of the
Howard Memorial Library,
New Orleans, La.

From among all antibiotics Otolaryngologists often choose

AUREOMYCIN

Hydrochloride Crystalline

because

Aureomycin appears rapidly in the tissues of the ear, nose and accessory sinuses, and in the cerebrospinal fluid.

Aureomycin, when given intravenously, attains maximum concentrations in the plasma within 5 minutes.

Aureomycin exhibits little tendency to favor the development of bacterial resistance.

Aureomycin has been reported to be effective against susceptible organisms in the following conditions frequently seen by otolaryngologists:

Laryngeal Infections • Otitis Externa • Otitis Media
Mastoiditis • Pharyngitis • Sinusitis • Tonsillitis

Throughout the world, as in the United States, aureomycin is recognized as a broad-spectrum antibiotic of established effectiveness.

Capsules: 50 mg.—Bottles of 25 and 100; 250 mg.—Bottles of 16 and 100.
Ophthalmic: Vials of 25 mg. with dropper; solution prepared by adding 5 cc. of distilled water.

LEDERLE LABORATORIES DIVISION AMERICAN CYANAMID COMPANY 30 Rockefeller Plaza, New York 20, N. Y.

ABSTRACTS FROM CURRENT LITERATURE

Bladder Neck Obstructions

Congenital Bladder Neck Obstructions. By Meredith F. Campbell, South. Med. Jnl., 41:2, 99-107, Feb., 1948.

Most bladder neck obstructions become manifest in early life but occasionally they are not presented for treatment until midlife or even at an elderly age. The authors report a 72-year-old man with obstructive uropathy from urethral valves in the prostatic urethra. The present report includes the author's personal study and treatment of 300 infants and children.

This survey includes congenital contracture of the vesical outlet, congenital valvular obstruction (of the prostatic urethra), deep urethral blockage by polyp, ureterocele, trigonal curtain, prostatic enlargement and neuromuscular vesicle disease.

Urinary secretion begins between the fifth and sixth month of fetal life so that the obstructive mechanical factors have been at work some weeks before the child is born. Total renal destruction has been noted at birth in newborn autopsy.

Nearly half of the author's cases were examined because they presented persistent enuresis. In 1500 children presenting persistent enuresis, one in eight presented residual urine. The remaining group presented persistent and recurring pyuria. Not infrequently cardiac hypertrophy and hypertension are found. The urinary bladder is invariably distented, sometimes extending above the umbilicus. Occasionally secondary urinary calculi are found.

Treatment of these uropathies is essentially as in adults by using miniature transurethral resectoscopic procedures. Not infrequently, suprapubic cystotomy or nephrostomy drainage must be done first because of the gravity of the situation. The maximal renal function and physiologic readjustment must be attained before corrective surgery.

Contraction of the vesical neck. This is usually a congenital submucous fibrosis with concentric narrowing of the vesical neck and a rather high median bar formation over the lower segment. This is similar to congenital stricture elsewhere. Congenital stenosis of the external urethral meatus often coexists.

Congenital valvular obstruction of the prostatic urethra. These valves are mucosal folds or redundancies which pass from the verumontanum posteriorly to the vesical outlet or anteriorly to the region of the membranous urethra or laterally to the urethral wall. In rare instances, the valve is an iris type diaphragm with only a small aperture. The diagnosis is readily made by endoscopic study at which time, by manipulation of the irrigating stream, the cusp-like nature of these structures is demonstrable. The valvular leaflets are removed by resection.

Congenital hypertrophy of the verumontanum. The veru is two to six times normal size. In minimal hypertrophy, a deep linear central coagulation is satisfactory when maximal transurethral resection is done which seals off the ejaculatory ducts. A polyp of the urethra is removed by resection.

Ureterocele is a congenital intravesical cyst of the lower end of the ureter, characterized by a pinhole ureteral orifice. It is sometimes very difficult to locate this minute ureteral orifice. They are usually bisected with scissors or electro cutting. Larger cysts may have to be removed by suprapubic incision and resection.

Occasionally, prostatic enlargements are found.

Neuromuscular vesicle disease is common in childhood and usually is not diagnosed. In these lesions, the nerve supply of the bladder and rectum is damaged or maldeveloped at its origin in the cord, possibly causing complete flaccid paralysis of vesical control. This condition may follow poliomyelitis, diphtheria, transverse or multiple myelitis, spinal cord injury at birth. It is usually the result of anomalous development of the spine and central nervous system, and may occur with spina bifida. When the bladder neck is sphincterospastic, transurethral resection affords a high percentage of cures and is the method of choice in treatment. Mecholyl is given to stimulate bladder contracture.—*D.R.D.*

Pamphlets on Heart Disease

A list of pamphlets distributed by the American Heart Association for use by both professional and lay persons was recently released to the *Journal* by the Kansas Heart Association.

Examination of the Heart is the title of the most popular booklet for physicians, and Cook Book for Low Sodium Diet has also been well received. Available also is a reprint, Recommendation for Human Blood Pressure Determinations by Sphygmomanometers.

Pamphlets designed for lay persons, recommended for use in the physician's reception room, bear such titles as What You Should Know About Rheumatic Fever, What the Teacher Should Know and Do about Children with Heart Disease, the Heart of the Home, Diseases of the Arteries, Challenge of Heart Disease, Know Your Heart, Employment and Heart Disease, High Blood Pressure, and Diseases of the Veins. The heart organization also recommends distribution of the pamphlets to women's clubs and other organizations interested in health problems.

MEAT... and the Cholesterol Content of the Diet

An essential constituent of human tissue, contributing to the normal functioning of all cells, cholesterol has been widely discussed as a factor in the etiology of atherosclerosis. Yet this lipid is required in many metabolic processes, and, furthermore, evidence is lacking that withholding cholesterol from the dietary is effective in preventing atherosclerosis.

In a recent plea for a return to the basic fundamentals of nutrition in the prophylaxis of atherosclerosis, it was emphasized that to eliminate cholesterol from the diet would mean to eliminate such animal foods as meat, milk, eggs, etc.* However, nutritionists are unanimous in asserting that these protective foods contain basic essential nutrients required for good nutrition and that to deny them would be "equivalent to the negation of practically all that nutrition science has taught us in the past."

According to these authors,* elimination of animal foods from the diet to prevent the development of atherosclerosis is unjustified on the basis of present day knowledge. They state that "there certainly is no evidence that meatless, milkless, and eggless diets should be recommended as desirable to the general public."

Meat, America's favorite protein food, always has been and continues to be an important dietary source of biologically complete protein, B vitamins, and iron. Few indeed are the conditions in which its use must be interdicted.

*Hegsted, D. M.; Mann, G. V., and Stare, F. J.: Comments on Cholesterol, Editorial, Postgrad. Med. *11*:454 (May) 1952.

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

ACCEPTED COUNCIL ON FOODS AND NUTRITION AMERICAN MEDICAL ASSOCIATION

American Meat Institute
Main Office, Chicago... Members Throughout the United States

Single copies of the pamphlets are available without cost, and a nominal charge is made for quantity orders and for books. Films for professional use are available at a small rental fee.

Complete information on the material may be secured from the Kansas Heart Association, Masonic Temple Building, Topeka.

Fifty per cent of all pharmaceutical sales 10 years hence will be accounted for by medicines that are not known today, in the opinion of Dr. J. Mark Hiebert, executive vice president of Sterling Drug, Inc.

Today, life expectancy is about 20 years longer than it was in 1900. More Americans can expect to live well into their seventies, eighties, and nineties. —*Public Health Service.*

CLASSIFIED ADVERTISEMENTS

YOUNG DOCTOR WANTED to take over practice and equipment in town of 2,000. No competition. Eight miles from hospital. Write the Journal 8-52.

FOR SALE—Specialist's chair, E.E.N.T., W.E., with adjustable light (Beck's); ENT specialist's cabinet, W.E., 78 x 32, 5 drawers and 2 large compartments (Shanklin's); Yankauer compressed air and suction unit for ENT, W.E.; steel ENT revolving stool, W.E.; steel folding examining and operating table (Army); assortment of general surgical and ENT instruments. Retired. Write the Journal 6-52.

Nationally advertised Surgical Supplies and Equipment have been placed at Topeka, Joplin, Kansas City and St. Joseph for your convenience by—

GOETZE NIEMER CO.

Management by Dr. W. F. Goetze, a member of the American Medical Association, assures intelligent servicing of your orders



PHARMACEUTICALS

A complete line of laboratory controlled ethical pharmaceuticals. Chemists to the Medical Profession since 1903. KA-7-52

THE ZEMMER COMPANY, Pittsburgh 13, Pennsylvania

ACCIDENT • HOSPITAL • SICKNESS

INSURANCE

For Physicians, Surgeons, Dentists Exclusively



HOSPITAL BENEFITS

	Single	Double	Triple	Quadruple
60 days in Hospital	5.00 per day	10.00 per day	15.00 per day	20.00 per day
30 days of Nurse at Home	5.00 per day	10.00 per day	15.00 per day	20.00 per day
Laboratory Fees in Hospital	5.00	10.00	15.00	20.00
Operating Room in Hospital	10.00	20.00	30.00	40.00
Anesthetic in Hospital	10.00	20.00	30.00	40.00
X-Ray in Hospital	10.00	20.00	30.00	40.00
Medicines in Hospital	10.00	20.00	30.00	40.00
Ambulance to or from Hospital	10.00	20.00	30.00	40.00

DISABILITY COSTS (Quarterly)

Adult	2.50	5.00	7.50	10.00
Child to age 19	1.50	3.00	4.50	6.00

$5,000 accidental death **Quarterly $8.00**
$25 weekly indemnity, accident and sickness

$10,000 accidental death **Quarterly $16.00**
$50 weekly indemnity, accident and sickness

$15,000 accidental death **Quarterly $24.00**
$75 weekly indemnity, accident and sickness

$20,000 accidental death **Quarterly $32.00**
$100 weekly indemnity, accident and sickness

COST HAS NEVER EXCEEDED AMOUNTS SHOWN

$4,000,000.00 INVESTED ASSETS

PHYSICIANS CASUALTY ASSOCIATION
PHYSICIANS HEALTH ASSOCIATION
50 years under the same management

$18,700,000.00 PAID FOR CLAIMS

400 FIRST NATIONAL BANK BUILDING **OMAHA 2, NEBRASKA**

$200,000.00 deposited with State of Nebraska for protection of our members

Your Laboratories . . .
Our Responsibility



Duncan Laboratories
Established 1921
KANSAS CITY, MO., *909 Argyle Bldg.*
JOPLIN, MO., *230 Frisco Bldg.*

Associated Laboratories
INDEPENDENCE, MO.
Physicians Laboratory
First National Bank Bldg.
LEXINGTON, MO.
Lexington Memorial Hospital
SEDALIA, MO.
Bothwell Memorial Hospital
WARRENSBURG, MO.
Warrensburg Medical Center

Curbstone Consultation

In experimental mice with induced chronic tuberculosis, lesions remained stable over 6-12 weeks; when 0.5 mgm. Cortisone was given daily for a maximum of 15 injections, 8 of 11 died with large, necrotic, coalescing pulmonary lesions containing many organisms. Similarly infected mice not treated with Cortisone showed no fatalities in a similar period.

One must consider that Cortisone could similarly aggravate tuberculosis in the human.

Hart, P. D'Arcy, and Rees, R. J. W., Lancet 2: 391-395, Sept. 23, 1950.

Pathologically Speaking

CELL STUDY OF SECRETIONS

WHENEVER abnormal amounts or abnormal types of discharge are encountered, the possibility of malignancy must be included in the differential diagnosis, and whenever such discharges or secretions are so located as to be accessible to aspiration, either under direct vision or by puncture of a space and aspiration, the fluid removed should be measured, the specific gravity determined, gross color and turbidity noted, and then some of the centrifuged sediment should be used for cell study.

If fluid is to be mailed to the laboratory before centrifuging, formalin should be added in amounts of 1 c.c. of 10% formalin to every 10 c.c. of fluid (to preserve cellular outline). On the other hand, if the fluid is to be centrifuged and smeared before mailing, the sediment should be dropped onto one slide, another slide dropped over it, pressure exerted to spread evenly the material between the slides, and then place the slides immediately —while still wet—into a Coplin jar or a mailing bottle containing 95% alcohol, which fixes the material to the slide. Putting a paper clip over one end of each slide will serve to keep the slides separated from each other.

Such a procedure is now applicable to aspirated pleural or peritoneal fluid, exudates anywhere on the skin or mucous membrane surfaces, sputum specimens, centrifuged urine sediments, fasting gastric secretions, cervical and vaginal discharges and abnormal discharge from the breast.

It must be emphasized that whenever highly suspicious symptoms and signs exist, such as tumor, bleeding, pain, weight loss, etc., but the smear is negative for suspicious cells, the physician must pursue the diagnosis further with biopsy, exploration, or whatever other procedures are indicated. A negative smear should never be taken as final evidence of the absence of malignancy.

RALPH EMERSON DUNCAN, M. D.
LORAINE E. SCHULTZ, M. D.
ALBERT E. UPSHER, M. D.

ANNOUNCEMENTS

The Army Medical Service will conduct 17 short postgraduate courses in surgery, psychiatry and other specialties during the last six months of 1952, the Department of the Army announced recently. The instruction is open to both military and civilian physicians and will be presented at six large Army teaching hospitals and the Institute of Pathology in Washington. Complete information may be secured from the Department of the Army, Office of the Surgeon General, Technical Information Office, Washington 25, D. C.

* * *

The 80th annual meeting of the American Public Health Association and the annual meetings of 38 related organizations will be held in Cleveland, October 20-24.

* * *

The 38th annual clinical congress of the American College of Surgeons will be held at the Waldorf-Astoria in New York City, September 22 through September 26. Attendance is expected to reach 10,000. The program includes clinics, postgraduate courses, forums, panel discussions, color television, medical motion pictures and scientific and technical exhibits. Sixty-two hospitals will cooperate in presenting operative clinics and demonstrations, and there will be 12 sessions of a forum on fundamental surgical problems.

A complete program may be secured from the College, 40 East Erie Street, Chicago 11, Illinois.

* * *

The fourth annual meeting of the Southwestern Surgical Congress will be held October 20-22 at the Baker Hotel in Dallas. Six outstanding guest speakers will present the scientific program and will participate in round table discussions daily. Each afternoon session will include a one-hour panel discussion with three additional guests as moderators. There will also be a motion picture period each day. Complete information may be secured from the central office of the Congress, 1227 Classen, Oklahoma City 3, Oklahoma.

* * *

The American Board of Clinical Chemistry, Inc., has amended its by-laws to extend the period during which applications for certification will be reviewed from July 1, 1952 to December 31, 1952. Those who make application before the December date and are subsequently approved may be certified without examination. The application fee has been increased from $1.00 to $3.00. Application forms may be obtained from Joseph W. E. Harrisson, ScD., Secretary, American Board of Clinical Chemistry, Inc., 1921 Walnut Street, Philadelphia 3, Pennsylvania.

Index to Advertisers

Abbott Laboratories 361
American Meat Institute 365
Ayerst, McKenna and Harrison, Ltd. X
Brown School XVI
Cook County Graduate School of Medicine.... XVIII
Duncan Laboratories 367
General Electric Company, X-ray Department... 357
Goetze Niemer Company 366
Hanicke, P. W., Manufacturing Company..... XVI
Kansas Oxygen, Inc. XIV
Lattimore-Fink Laboratories XVIII
Lederle Laboratories, Inc. 363
Lilly, Eli, and Company Facing XVIII
Major Clinic XII
Mead Johnson and Company Back Cover
Medical Protective Company XIV
Merck and Company, Inc. XIII
Munns Medical Supply Company, Inc.....XIII
Neurological Hospital Association XVIII
Parke, Davis and Company
.....Inside front cover and III
Pfizer, Charles, and Company, Inc. VI and VII
Philip Morris and Company XI
Physicians Casualty Association 363
Ralph Sanitarium XV
Reynolds, R. J., Tobacco Company VIII
Schering Corporation IX
Searle, G. D., and Company 355
Smith-Dorsey Company Inside back cover
Southwest Scientific Corporation 368
Upjohn Company 359
Washington National Insurance Company..... XII
Winthrop-Stearns, Inc. V
Woodcroft Hospital XVI
Wyeth, Inc. XVII
Zemmer Company 366

To demonstrate how state and local health departments can help meet the health needs of older people, a hygiene of aging program is being established in the Public Health Service of the Federal Security Agency. The Division of Chronic Disease and Tuberculosis of the Bureau of State Services will operate the program.

Everything for the Laboratory

Southwest Scientific Corporation

LABORATORY SUPPLIES AND EQUIPMENT

122 South St. Francis Street

Phone 2-0582 Wichita, Kansas

THE JOURNAL
of the
KANSAS MEDICAL SOCIETY
Owned and Published by The Kansas Medical Society

Volume LIII AUGUST, 1952 No. 8

Marie-Strumpell Arthritis (Including a Survey of 41 Cases Treated With X-Ray)

Charles M. White, M.D.*
Wichita, Kansas

Marie-Strumpell arthritis is a chronic, painful disease of unknown etiology, producing rigidity of the spine of young persons. It has remissions and exacerbations of both systemic and local manifestations, yet it is slowly progressive and may lead to complete bony ankylosis of the vertebral column.[5, 6] The other common names for this disease are spondylitis rhizomelique, rheumatoid spondylitis and spondylarthritis. The most commonly described physical finding is the well known "poker spine."

There have been attempts in the past to prove that the disease is due to gonorrhea or some other form of infection, which have not been conclusive. There are also other theories, but the fact remains that the cause is not known so the treatment used must be empiric. Even so, it still may be quite satisfactory.

The onset of Marie-Strumpell arthritis is usually insidious. The patient (generally a young man) becomes aware of aching in the low back. He finds that on arising in the morning his back is uncommonly stiff. The stiffness and back pain gradually subside during the day. Before long his back discomfort awakens him during the second portion of the night and he finds it necessary to get up and move about to obtain relief before he can sleep again.[2] Somewhat later his back pain and stiffness require that he spend the second portion of the night in a chair. He begins to lose some of his normal healthy appetite and notices a slow loss of weight. By this time the back pain and stiffness do not leave during the day and he notices that he holds his back unusually straight. Coughing and sneezing begin to cause him much pain between the shoulder blades. He finds it is increasingly difficult to back his car out of the garage since he cannot turn his neck freely. At all times he is sure that his trouble is in his back, although there may begin to be some stiffness in his hips and later in the shoulders. At any time during the progress of this crippling disease the patient may inexplicably find himself better for a time, only to have the symptoms return later and continue their progression. In some cases progress of the disease is acute and rapid, while in others it is slow with many remissions.

As the disease progresses, there is bony fusion across the sacroiliac and apophyseal joints, as well as ossification in the collateral ligaments of the spine. As the amount of fusion increases the pain decreases.[7] When fusion occurs there is, of course, permanent stiffness.

It is a common belief that the arthritis pursues its relentless course until fusion of the spine and sacroiliac joints is complete. It has been pointed out by Dr. Hodges in his discussion of the work of Hemphill and Reeves[6] that one does not see the typical end result of Marie-Strumpell arthritis as often as the earlier cases. He suggests that permanent remissions may occur at any time and that the disease is partly self-limited. Others have noted patients in whom the arthritis has remained localized to the sacroiliac joints even though there has been no treatment.[3]

Naturally, extensive fusion brings various complications with it. The temperomandibular joints may even be involved. With fusion of the costovertebral joints the ribs become rigid, chest expansion is limited, and normal respiration is hindered. The vital capacity is lowered. This alteration in physiology is said to predispose these patients to pulmonary pathology such as atelectasis, pneumonia and tuberculosis.[4]

The disease is not fatal in early stages so there has been little or no material available for pathological study. There is a temptation to consider it

*Department of Radiology, the Wichita Clinic, Wichita, Kansas.

the same as rheumatoid arthritis of peripheral joints, but there is certainly an underlying fundamental difference indicated by the following clinical observations:[1]

1. Sex ratio—About 90 per cent of these cases occur in men while rheumatoid arthritis occurs twice as frequently in the female as in the male.

2. Marie-Strumpell arthritis primarily affects the spine, while rheumatoid arthritis affects peripheral joints.

3. The appearance of the two lesions is different on the x-ray film. (Atrophy of subchrondral bone in rheumatoid arthritis, but mottling and loss of trabeculae in Marie-Strumpell arthritis.)

4. Calcification of ligaments does not occur in rheumatoid arthritis.

5. Marie-Strumpell arthritis responds very well to x-ray therapy while rheumatoid arthritis shows little response.

The most consistent laboratory finding of help is an elevation of the sedimentation rate. This is usually, but not always, present. In a high percentage of cases which improve following x-ray therapy, the sedimentation rate returns to nearly normal, only to be elevated again if there is an exacerbation of the disease.

The diagnosis of Marie-Strumpell arthritis is quite easy by clinical means when there is considerable involvement. X-ray examination is most helpful, particularly in the early stage. There is good agreement in this country that, for practical purposes, all cases have involvement of the sacroiliac joints early. It is here that the changes can be demonstrated by x-ray best. There may also be early involvement of the apophyseal joints. They can be studied by oblique views of the spine, but unfortunately these views are not always successful and because of overlying bone the early changes cannot be seen. The changes which occur in the sacroiliac joints are quite characteristic and fall roughly into the following groups, according to Forestier:[2]

Stage I—Contours of subchondral bone become wooly and hazy and clear cut outline of joint disappears. Joint appears widened (Figure 1).

Stage II—Cancellous bone, both in sacrum and ilium adjacent to joint, develops mottled appearance (Figure 2).

Stage III—Ossification across the joint space develops and there may be some sclerosis (Figure 3).

Of more clinical help is the following:[8]

Early—x-ray changes limited to the sacroiliac joints.

Moderately advanced—Partial obliteration of the sacroiliac joints and some calcification of ligaments.

Far advanced—Ankylosis.

There has been a staging developed for the apophyseal joint involvement[7] based on x-ray findings which is almost identical to that described above occurring in the sacroiliac joints (See Figure 4). Ligamentous calcification occurs along the spine after the apophyseal joints are fixed either by bony fusion or complete immobility secondary to muscle spasm.

In the earlier stages of the disease, treatment which will relieve the pain and muscle spasm will be of help. In the past gold[2] therapy has been fairly



Figure 1. Stage I Marie-Strumpell Arthritis. Note haziness and "wooly" appearance of sacroiliac joints. Patient has been symptom free for almost four years following one series of irradiation. Had symptoms for five years before therapy.

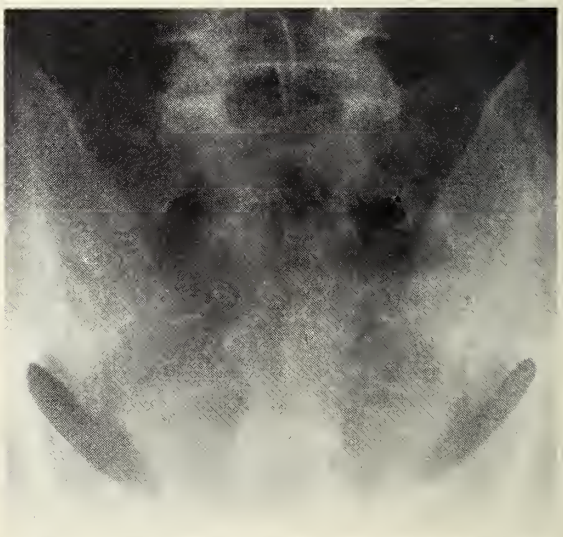


Figure 2. Stage II Marie-Strumpell Arthritis. Note mottled appearance of cancellous bone adjacent to joint and beginning loss of joint space. Patient has had excellent remission for eight months with one series of irradiation. Had symptoms for six years before therapy.

effective. Salicylates and other medicines are of only temporary value. Special exercises and other physical measures are at times of value to prevent immobility and deformity. Unfortunately the pain is usually so severe that these measures cannot be adequately carried out. More recently cortisone has produced dramatic improvement. In most cases, however, the symptoms return when the hormone is withdrawn. In a recent patient with severe pain, we found it helpful to control the symptoms with cortisone until the effect of x-ray became manifest, at which time the cortisone was withdrawn with no recurrence of symptoms.

Surgical orthopedic measures find a place in the treatment of this disease after there is fusion of the spine in the typical flexion deformity. Lumbar osteotomy[9] can be done to correct the flexion of the lumbar spine, allowing the patient to stand erect again. The surgery is of moderate magnitude and is recommended as a measure for rehabilitation of certain patients only.[10]

Roentgen therapy is at present the treatment of choice, even though its mode of action is not understood. In early cases relief may be most dramatic and even in moderately advanced cases there is usually material benefit. It is a source of great satisfaction to treat a young man with pain and muscle spasm who is no longer able to work and in a short time see him practically normal again.

There is, in general, quite good agreement concerning the technique of x-ray therapy. The dosage prescribed varies from 200-450 r over each area of the spine and sacroiliac joints. This is given in a series of treatments, delivering 100-150 r to one or two areas at a sitting. Treatments may be given daily or two or three times weekly. If symptoms remain, it is advisable to repeat the series in six to eight weeks. Some[6] advocate fields from 8 to 10 cm. in width, while others feel that the fields should be 15 cm. in width. Good results have been obtained either way. It is probable that not only the spine and its ligaments should be treated but the paraspinal muscles should also be included.

Our treatment technique has been to treat two areas at a sitting and to give treatments three times a week. Each portal treated is given 150 r. Each portal is treated three times so that the spine and sacroiliac joints receive a total dose of 450 r in about two weeks. We use portals as indicated in Figure 5. Pain and stiffness are used as the indications for treatment.[3] If symptoms are localized to the sacroiliac joints, we treat only this area and the lumbar spine. Usually there are symptoms referable to the entire spine. If no relief is obtained after a second

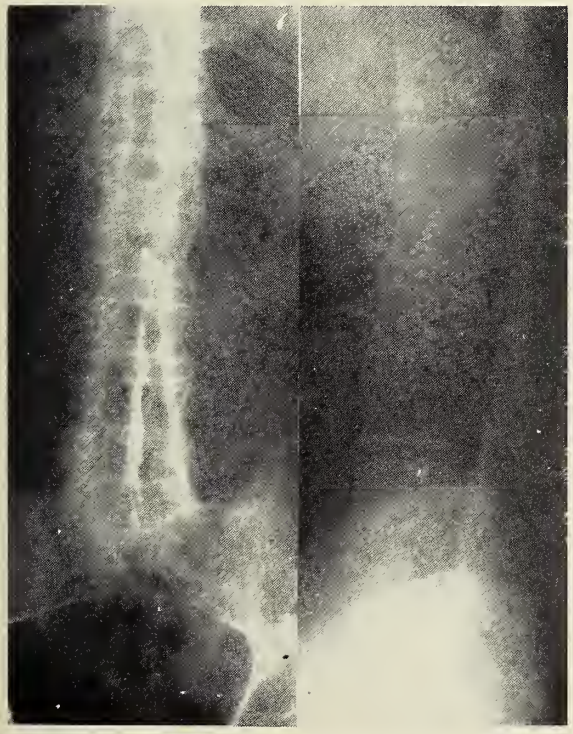


Figure 3. Stage III Marie-Strumpell Arthritis. Note paravertebral ligament ossification and complete bony fusion of both sacroiliac and apophyseal joints. Has had no irradiation.

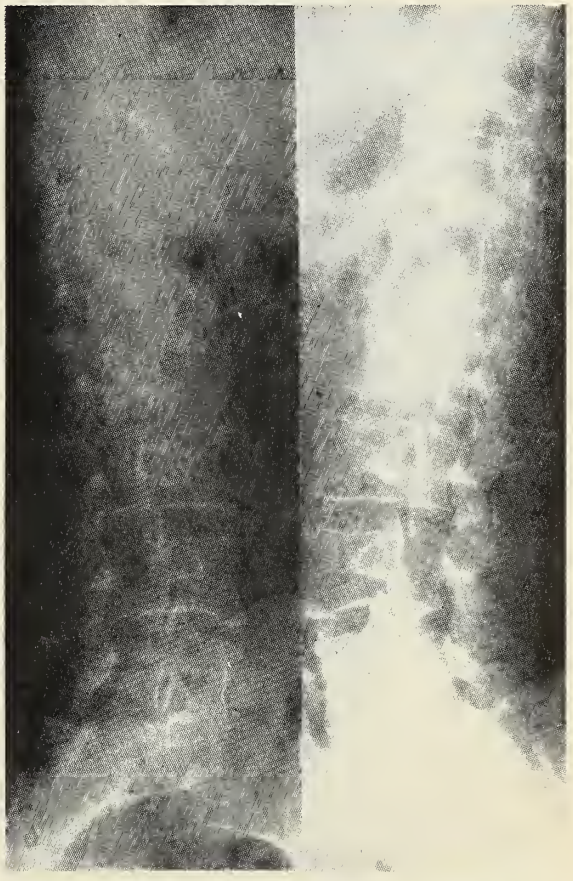


Figure 4. Oblique views to demonstrate the apophyseal joints. This is a Stage II case (note ossification of paravertebral ligaments) yet the changes in the apophyseal joints are difficult to see and evaluate even though they are involved.

series is given, additional treatment is usually of no benefit.

The amount of x-ray used is small, and if used judiciously may be repeated several times as exacerbations occur without danger. Usually exacerbations will respond to smaller amounts of irradiation. Complications from the therapy are nil. There may be slight nausea or vomiting, but this is rare and of short duration when treatments are given three times weekly. A transitory leukopenia may occur but has never been sufficient to cause any concern. About 10 per cent of cases occur in women, in whom treatment over the sacroiliac area may cause sterilization. One may try small doses, but if it is necessary to give as much as 450 r there is danger of permanent sterilization. Such treatment may be necessary if much pain is present. It should be done only after obtaining written consent of the patient.

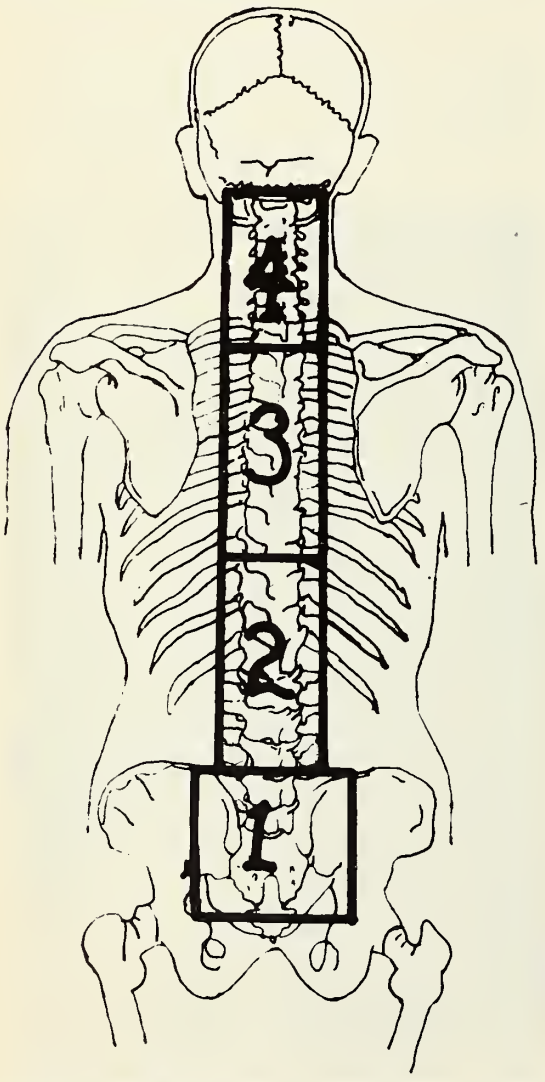


Figure 5. Spinal portals used in irradiation therapy of Marie-Strumpell Arthritis. Portal No. 1 is 15x15 cm. and other portals are 10x20 cm. These portals are 5 cm. narrower than those we originally used but we have seen no difference in the results obtained.

We have made an evaluation of our results from x-ray therapy based on the subjective response of the patient. The only objective findings available would be an increase in the range in motion and evidence of improvement of the involved joints by x-ray. As the patient improves there is definitely an increasing range of motion. This is most prominent in early cases. Very early cases may also show improvement in the appearance of the sacroiliac joints on x-ray.[1] Subjective improvement has been reported as occurring in 70 to 80 per cent of the cases treated by x-ray.[6, 8] Twenty per cent may remain symptom free for over one year with one series of treatment. Fifty per cent objective improvement has been reported.[8] After two or three series of treatments the remissions are of longer duration.

The possibility has been raised that the improvement obtained is on a psychic basis only. This has been true in some other types of arthritis. Patients with Marie-Strumpell arthritis have been placed under the x-ray machine and allowed to think they were being treated but were being protected by a lead shutter.[7, 8] In no case was there any significant improvement. Later actual x-ray therapy was given to the same patients with prompt significant improvement.

In the past four years we have treated 41 cases of Marie-Strumpell arthritis. Cases treated during the past six months were not included in this survey. Each patient has been contacted by letter. All but four have replied, answering questions which form the basis of all of our following data. It was assumed for the purpose of this study that the four who did not respond were unimproved.

The sex incidence in this series is about the same as that reported by others. There are only four female patients giving a ratio of about one in ten.

Three-fourths of the patients were from 20 to 40 years of age, which are some of the most vital years of a young man's life. Only two occurred under the age of 20.

It was interesting to study the duration of symptoms. Almost 50 per cent of the patients stated that they had had symptoms for five years or more. Only four patients had symptoms of less than one year's duration. This indicates that the progression of the disease is slower than usually thought. In some cases it was so slow that it would probably have "burned out" without extensive involvement even if not treated. One, of course, cannot tell ahead of time which cases will do this and which will progress relentlessly to total fusion.

An effort was made to classify the patients according to the stages already discussed. We were fortunate in having mostly moderate cases. There were 10 early, 27 moderately advanced and 4 far advanced

cases. The small number of advanced cases should help make our total results good. None of the far advanced cases showed much improvement, while the benefit occurring in early and moderately advanced cases was about the same.

In evaluating the improvement he had received the patient was asked to indicate it as 25 per cent, 50 per cent, 75 per cent or 100 per cent. An arbitrary division was made. If the patient said less than 50 per cent, he was considered as unimproved. The 10 per cent who did not answer the questionnaire were also considered as unimproved. Since there were 33 patients with 50 per cent or more improved, we have had a good result in 80 per cent of the cases. This compares favorably with most reported series.

As yet, no long term results have been reported, so it is not definitely known how long remissions last. Out of this series, 21 cases or 50 per cent have had good remissions lasting from one to four years. Nine patients of this group have had remissions lasting three to four years. The other patients who had good remissions had recurrences in about six months requiring additional therapy. There are several cases with considerable pain who now need another series of treatment.

Our results are also in agreement with others[7, 8] who emphasize the importance of early diagnosis and early treatment. It is at this time that there does appear to be an opportunity to effect a permanent remission. If one waits for ligamentous calcification to confirm the diagnosis, the disease is far advanced and but little help can be expected from treatment. There is sufficient clinical evidence (spasm of back muscles, elevated sedimentation rate, etc.) and characteristic x-ray findings in the sacroiliac joints to make the diagnosis in the first stage and institute roentgen therapy.

We do not know definitely whether the irradiation gives only symptomatic relief or has a define effect on the course of the disease.[8] With a patient at hand this is of little importance when one can offer him a good chance of marked relief from his distressing affliction.

Conclusions

1. The diagnosis of Marie-Strumpell arthritis can be made from clinical findings and the x-ray appearance of the sacroiliac joints.

2. Early diagnosis is possible and is essential since early treatment may effect a permanent remission.

3. X-ray therapy is at present the treatment of choice but should be correlated with suitable orthopedic measures.

4. X-ray therapy will bring about significant improvement in about 80 per cent of cases. Exacerbations may be controlled by additional therapy.

Bibliography

1. Baker, Lenox D., Coonrod, R. W., Reeves, Robert J., and Hoyt, W. A.: Marie-Strumpell Arthritis, J. of Bone and Joint Surg. 32A:848, Oct. '50.
2. Forestier, Jacques. Importance of Sacro-Iliac Changes in The Early Diagnosis of Ankylosing Spondylarthritis. Radiology 33:389, Sept. '39.
3. Freyberg, Richard H. Roentgen Therapy for Rheumatic Diseases. M. Clin. North America, May '46, p. 603. W. B. Saunders Co., Phil.
4. Hamilton, K. A. Pulmonary Disease Manifestations of Ankylosing Spondylarthritis. Annals of Internal Medicine 31:216, Aug. '49.
5. Hare, Hugh F. The Diagnosis of Marie-Strumpell Arthritis with Certain Aspects of Treatment. New Eng. J. of Med. 223:702, Oct. '40.
6. Hemphill, James E. and Reeves, Robert J. Roentgen Irradiation in the Treatment of Marie-Strumpell Disease (Ankylosing Spondylarthritis). Am. J. Roentgenol. and Rad. Ther. 54:282, Sept. '45.
7. Oppenheimer, Albert. Development, Clinical Manifestations and Treatment of Rheumatoid Arthritis of The Apophyseal Intervertebral Joints. Am. J. Roentgenol. and Rad. Ther. 49:49, Jan. '43.
8. Smyth, C. J., Freyberg, R. H. and Lampe, Isadore. Roentgen Therapy for Rheumatoid Arthritis of the Spine. J.A.M.A. 117:826, Sept. '41.
9. Stuart, F. Wilson and Rose, G. K. Ankylosing Spondylitis Treated by Osteotomy of The Spine. British Medical Journal, Jan. 21, '50.
10. Thompson, Walter A. L. and Ingersall, Robert E. Osteotomy for Correction of Deformity in Marie-Strumpell Arthritis. Surg. Gyn. and Obstet. 90:552, May '50.

Psychiatry in a University Health Service*

Sigmund Gundle, M.D.**

Lawrence, Kansas

The experiences of a psychiatrist working in a university setting are in certain ways unique with respect to the problems which one meets as well as because of the particular age group involved. In this fast moving world the status of mental health among college students may be of more than passing interest because of the potentially important role which these individuals may play later on in our society. Quoting from a recent educational advisory committee of the University of Kansas Academic Senate, "We must recognize that our colleges, by and large, educate for future leadership."

However disturbing this thought may be to our democratic yearnings toward equality of opportunity, and however distasteful we may find this thought, the fact of the matter is that a fairly long selective process lies behind every student, though not all of our college graduates will be in a position of leadership later on. While this may not be the theoretically intended goal of college education, nevertheless, many of the men and women in our universities

*Read at the meeting of the Mid-Continent Psychiatric Association in March, 1950.

**Psychiatrist, University Health Service; Associate, School of Medicine, University of Kansas.

today will be the pioneers and leaders of tomorrow in politics, industry, business and science. In one form or another they will be forced to assume leading positions in their respective communities, leaving the imprint of their personalities. With this in mind the work of a psychiatrist with this small segment of our population may be of interest.

A few words may be in order about the administrative position of the psychiatrist in a university, with particular reference to the University of Kansas. As in many other activities, this determines to a certain degree how one functions. As in most universities with a well developed health service, the psychiatrist is a part of the University Health Service, the clinical facility which takes care of all the students' medical needs. Such a set-up usually operates as a prepaid health insurance plan. The health fee paid by each student per semester entitles him to the free use of the clinic facilities which here includes the services of a psychiatrist. The matter of a fee for psychiatric services has been removed entirely from the patient-doctor relationship. It may well be necessary to modify this in the future, at least to a degree that in addition to the regular health fee, each student may have to pay a small fee for any psychotherapy which is beyond a certain minimum. If necessary this fee may be small and only a token of his personal contribution.

Clinical Aspects

As elsewhere in psychiatry the most important and main activity consists of clinical work with individuals, which here means diagnostic and psychotherapeutic work with university students. To begin with, the problems are not basically different from what one finds elsewhere in clinical psychiatry. However, we are dealing with a specific age group, persons who are either still adolescents or what might be called post-adolescents. Consequently the main problems which one encounters are those either typical for adolescents or the concomitants of this particular stage of development. A great number of problems normally arise in adolescents which can be solved in a variety of ways, resulting in many acceptable adaptations to reality. At times, however, in response to additional environmental or intrapsychic stress, these problems become the source of symptoms.

One of the common problems of adolescence is the heightened intensity of striving for independence, accompanied by a reluctance, at least unconscious, to give up dependent gratifications, which often results in their denial. This is reflected in the frequent clinical problems of mild to severe hostility and resentment against parents, or such parental symbols as teachers, housemothers, etc. It is somewhat characteristic that such problems, when aired, often are accompanied by an intense and highly charged affect.

Another physiological problem of adolescence, closely related to the first, consists of considerable doubts and uncertainties in interpersonal relationships and difficulties in finding new emotionally gratifying object attachments. The basic uncertainty centers around the important question, "Am I wanted, am I accepted?" and manifests itself often in such symptoms as shyness, inhibition which may go on to withdrawal, or to a variety of obsessional doubting. It is, of course, not accidental that both these problems are typical for adolescents and may give rise to maladjustment. The adolescent, in general, and especially the student who comes to a university, is faced with unavoidable transition from a family group to new, less cohesive groups outside the parental home. This requires that new identifications be established so that one can feel accepted in new groups.

The adolescent is also faced with the necessity of forming new long range or immediate life goals. One of the frequent difficulties one encounters is, "What do I want to do?" Such motivational difficulty, if intensified, may give rise to symptoms of inability to study or to concentrate, or even to scholastic failure. Often when real or subjectively felt parental pressure plays a role in the decision to go to college, the defective motivation will soon show up. Strong resentments against parents and difficulties to identify smoothly, seem to play a role when defective motivation develops.

Another difficult area for adolescents is that of overt sexual problems. Concern over heterosexual relationships, masturbation, homosexual problems, doubts as to potency, which of course are only the surface rumblings, is understandable if one considers that the 17 to 22 year old is close to those sources of anxiety which play such an important role during infancy and puberty, and at the same time he is constantly confronted with the necessity to cope with his sexual desires.

These are just a few examples of the great variety of problems which one encounters clinically, and there are many more which could be added. Needless to say, in a university, we are dealing with a group which generally is characterized by fairly high intelligence. This, of course, makes it more likely that the patient can successfully participate in psychotherapy, though this definitely does not mean that psychotherapy cannot be successful in lower IQ groups. In general the desire to get treatment seems to be a very strong one among students. It has repeatedly been observed that in many of our patients who develop psychiatric symptoms, the external or internal psychological precipitating factors were relatively close to the conscious surface, perhaps

because they stem from more recent life events. This makes such an illness more easily accessible to the therapeutic approach and, at the same time, makes for a generally more acute and milder symtomatology. As a result of this, short term therapy is often successful, and patients respond to therapy in the course of 10 to 30 hours.

Not only does one see a high percentage of fairly acute symptoms, but certain symptoms are more conspicuous. For instance, various degrees of depression are common, either appearing alone or accompanied by other symptoms such as somatic manifestations of anxiety or various degrees of anxiety states. Obsessional fears or phobias have been encountered fairly frequently, and often it is very difficult to distinguish between an anxiety hysteria and more acute obsessional fears.

Various somatization symptoms such as headaches and gastrointestinal troubles are also quite common. They often are still associated with the tension and anxiety which originally was connected with them and are not yet in the stage where this anxiety has been isolated or suppressed. In the case of severe headaches, for instance, it has been observed how an almost explosive-like discharge of affect and tension is accompanied by a relief from symptoms.

Only occasionally one finds rather superficial dependency problems which are expressed in the form of mild symptoms and probably are the main motivating force in the desire for therapy. We have seen a certain number of patients who could be classified as schizoid characters or who are early schizophrenics. Often we have noticed how in a university, schizophrenics may do very well with a little supportive therapy. In this connection, we learned that the incidence of schizophrenic disorders seems to be disproportionately higher among graduate students. It appears that the various graduate schools seem to afford a convenient shelter for schizophrenics to avoid reality problems. There they seem to feel more comfortable and often make excellent contributions pursuing scientific investigations or creative arts.

Mental Hygiene Aspects

In addition to working with individual students it is possible to make a contribution to the general mental health and the overall adjustment of the students if one works with faculty members with whom the students have frequent contact. This is not unlike the situation in the Army during World War II, where one tried to reach leaders and other key personnel, once it was recognized that morale and adjustment depended to a large degree upon their relationship to their men.

There are many possibilities in a university where a psychiatrist can be useful along these lines. One such possible approach consists of frequent conferences with the deans of men and women to discuss problems as they reach their offices. This is done not only because of their close contact with students but here, as well as in most universities, adjustment problems often are referred to them and they usually do a good deal of counseling themselves. However, by no means do we think that a psychiatrist should get concerned with all their activities, but instead one should only strive to help with certain particular aspects which they want to bring to our attention and where psychiatry may have something to offer.

Another such activity which has been started is a course of regular meetings with the housemothers of the various university houses. This was done on the premise that the housemother plays a potentially important role in the life of the student, not only because she often is a parental symbol but also because of her close contact with students and because she usually exercises a certain amount of authority. Meetings with housemothers are informal. The psychiatrist simply attends some of their regular meetings and either attempts to utilize these sessions in a group therapy-like fashion or gives a brief presentation followed by a discussion. A combination of both of these techniques has been utilized. The responses which echoed from these meetings ranged from enthusiasm to disapproval.

A third of these preventive activities is concerned with screening of students who apply for scholarships to other schools, especially those who plan to go abroad. The merit of this is somewhat debatable but the chances are that an individual with a precarious adjustment may be worse off in a new and strange environment, though it is realized this is not necessarily always the case. However, a fairly large number of students go to Europe and South America every year, especially now when many universities permit a student to get credit for the whole senior year in a European university. Should such a student suffer a psychotic break, as happened to a South American exchange student while he was at K.U., he would be in a pretty difficult situation and probably be without adequate resources.

The psychiatrist might also be concerned with a coordination of other available counseling services at the university. There are, of course, always a number of other places in a university where a student can go with his difficulties and where counseling is done. It is felt that a coordination of these resources would serve the students' needs best, so that services like vocational guidance, marital counseling, and others can be utilized most effectively. Good working relationships with these services and avoiding the impression that psychiatry competes with their function may be useful. Such counseling will continue whether or not the medical

profession approves of it, and it may be better to work with them. One advantage to be gained from such cooperation is the greater likelihood that the more difficult problems and the ones that involve real psychopathology will be referred for psychiatric treatment.

The Psychiatric Viewpoint in the General Education Process

So far the role of the psychiatrist in a university, though it may differ in some specific aspects, is basically not very different from what one does generally in psychiatry or in the field of mental hygiene. There are, however, a few possibilities which one does not encounter elsewhere. In a university the psychiatrist has to work with a variety of other academic disciplines and has the opportunity to represent the psychiatric viewpoint in several areas within the general education process.

It goes without saying that our meager knowledge of why people act as they do does not entitle us to think we know much about academic education and its needs. As a matter of fact, one finds very frequently among faculty members that they have an unusually accurate and excellent though chiefly intuitive knowledge about emotional problems and that their viewpoint is very often identical with ours, except theirs is not couched in technical terminology. Nevertheless, in certain particular areas, especially in the field of biological and social sciences, psychiatry, it is felt, can make a small contribution without any attempt to do more than that. Therefore, one can consider it part of the responsibility of a psychiatrist in a university to represent the psychiatric viewpoint within the educational process beyond the teaching of psychiatry to medical and social work students. It is important to keep in mind that no effort can or should be made to forcibly inject the psychiatric viewpoint. It can only be offered when it is invited or when it finds acceptance.

Related to the general educational process are regular meetings with a group of graduate students and instructors in the Department of Education who are specializing in personal counseling, high school guidance work or vocational counseling. Such meetings have been held regularly for one year. As one would expect, we have encountered some resistance in presenting the psychiatric viewpoint here. The psychiatrist is a threatening person to such a group of counsellors whose basic philosophy about behavior is different from ours as they are not biologically oriented. However, we believe that such individuals can thus be helped to be better prepared for future counseling and guidance work, particularly those who work in schools and have to deal with behavior problems in children.

Another such group where the psychiatric viewpoint has been presented is the Human Relationship Department. This department teaches courses in the Schools of Business, Political Science, and Economics, and is concerned to teach students the importance of interpersonal relationships in business, industry and especially in various administrative fields. This includes the wide field of industrial relationships. Their philosophy is based chiefly on Elton Mayo's teachings. In this group it has at times been possible to discuss certain problems as they arose in their classes or in their work in general from the psychiatric viewpoint and to make a small contribution, especially in a discussion involving human behavior and human reactions.

Another activity is only a potential for the future and is still in the planning stage. It has not been possible to put it into practice yet, but it is mentioned here because of its future usefulness. It is felt a psychiatrist in a university has a responsibility to participate in the training of grade school and high school teachers. One could use a dual approach. Individual psychiatric evaluations of each future teacher would be one part. In cooperation with the school of education, such an evaluation would eliminate those individuals who obviously and grossly are unsuitable to deal with children because of their own severe maladjustments or emotional difficulties. One would have to limit such drastic measures to a few of the severest maladjustments and could recommend individual psychotherapy to others before they qualify as teachers. It would of course be highly desirable to make an effort to help the student accept such a recommendation.

The second aspect of such a project would consist of working in small groups with these students majoring in education. More or less, with the help of group therapy techniques, one then could answer their many questions about emotional adjustment and deal with their own tensions and anxieties. This would give them some understanding of their own difficulties and some general orientation about human behavior based on a personal experience in a group setting. It would not be unlike similar projects now being carried out by psychiatrists with teachers in school systems, only here it could be done with a younger group, before they became teachers and when they are still more accessible.

Summary

These are some of the activities by which we hope to make a small contribution within the general process of university education. Besides the clinical work most of these activities are in fields where human behavior is involved. However, the main activity of a psychiatrist within a university health service is clinical work with individual students, to help them deal with their individual problems and to bring about healing by psychological means when their health is impaired for psychological reasons.

Acute Traumatic Subdural Hematoma: Report of a Case with Slight Trauma from Boxing

C. W. Hall, M.D., D. E. Eckart, M.D., M. E. Nunemaker, M.D., and R. A. Crawford, M.D.

Hutchinson, Kansas

Subdural hemorrhage is sometimes caused by a trivial injury. Normally the subdural space contains only a small amount of lymph-like material and has no capacity for the absorption of blood, as does the underlying subarachnoid space. Acute subdural hemorrhage, according to McDonald, Green and Lang, is rare and is suspected in a patient who, a few days following recovery from unconsciousness, develops focal signs and secondary loss of consciousness, and when diagnostic lumbar puncture reveals the fluid to be xanthochromic and under increased pressure. Scott found five out of 100 consecutive patients operated upon for subdural hemorrhage to be associated with no history of trauma.

The history of the beginning of treatment of acute subdural hematoma by surgical methods dates back to between 460 and 370 B.C. with Hippocrates.

Hippocrates' rule, with contusion of the head without fracture, was to operate the first day or two to prevent bad symptoms from developing. In about 25 A.D. Celsus, a celebrated Roman physician and writer, established a rule to not operate until severe symptoms presented themselves. From Pott's day to modern times the latter rule has been followed. Laurie reported about 1870 that after his 30 years' experience, in cases in which extravasation existed as a principal lesion or as an important complication, in only one could the operation have saved the patient; of the 17 patients operated upon, not one recovered. Infection was apparently the most common complication resulting in death.

There has been a great deal of discussion on the classification of subdural hematomata. According to one classification, all hematomata that cause death are described as acute (Kennedy and Wortis). In another classification, cases of subdural hematoma that still show unhealed or acute brain injury are placed in an acute group, the others being classed as chronic (Munro). In another classification, an acute subdural hematoma is regarded as the result of a severe head injury, usually with a fracture of the skull and more or less extensive brain laceration, whereas chronic subdural hematoma is considered to be unassociated with severe brain injury, and the history of trauma, as a rule, is slight or absent (Peet).

Another classification puts them into three groups: acute, subacute and chronic, based on severity and the time the clinical symptoms present themselves (Echlin). He stresses, however, that many patients suffering from collections of blood in the subdural space do not present an acute or chronic picture.

Diagnosis of hematoma offers many pitfalls, as has been stated by all writers. Often less than half the cases may present signs properly indicating the side of the hematoma, a few cases may indicate a lesion opposite the side of the hemorrhage, and the others present no neurological findings that conclusively localize the side of the hematoma. In 70 patients described by Echlin, 29 presented signs correctly indicating the side; in 21 cases the neurological findings were inconclusive; in 12 cases the signs pointed to a cerebral lesion on the opposite side of the hemorrhage. There were eight cases of bilateral hematoma. According to Kennedy and Wortis in their series, the dilated pupil was the most valuable sign, and in the event of operation the first trephine opening should always be on the side of the dilated pupil.

The majority of writers agree that the signs which appear at a later date, especially if progressive, are of distinct value in making the diagnosis. Laboratory aids that help in localizing the hematoma are few. Spinal puncture has value only in giving some idea of the prognosis and how much surrounding brain damage might have occurred. Marsh, Hjartarson and Courville state that in their 13 cases of verified subdural hematoma, suppression of alpha activity in the EEG tracing may be helpful as a diagnostic factor and in suggesting the point for making the burr hole; however, because of the variability in the tracings, this method cannot be entirely relied upon in establishing the correct diagnosis. Scott, in reviewing the literature, agrees with this finding.

The treatment for acute subdural hematoma as presented by most authorities consists of treatment of shock if present, lumbar puncture, dehydrating agents, caffeine sodiobenzoate (7½ gr. every four hours), elevation of the head of the bed and removal of blood by surgical evacuation. Burr holes are made just anterior to and above each ear. This is adequate for nearly all acute hematomas. Echlin reports that it was necessary to turn a bone flap in only one case, which was to remove an organized

liver-like clot, 31 days old. Trephining has its advantage in that it is simple, time saving, and allows one to expose both sides without undue shock. These openings may be used for ventriculography in the case of negative explorations.

Kennedy and Wortis showed by autopsy that trephining results in adequate removal of blood or clots, refuting the idea that it results in incomplete removal of entrapped blood and that the blood remaining in the subdural space might act as the nucleus for the formation of another clot.

The mortality rate of these cases is in direct proportion to the amount of associated contusion and laceration of the brain that occurred at the time of the trauma. This is determined in part by clinical signs (deep coma and increasing temperature and pulse associated with respiratory irregularities and nuchal rigidity), and the laboratory signs of bloody spinal fluid under increased pressure.

In the series of Kennedy and Wortis, cases that underwent surgical treatment had an average mortality of 60 per cent. In cases where there was no operation, there was 100 per cent mortality.

Report of a Case

This 24-year-old white male laborer was training for a local Golden Glove tournament when he was struck on the right temple with a moderate blow that brought on temporary dizziness. He continued the bout and noted nothing more than a slight headache that persisted. That evening he noted nausea, vomiting, and increased severity of the headache. The symptoms continued with increasing severity with the additional symptoms of drowsiness and short periods of being irrational.

On the third day a doctor was called and the patient was admitted to the hospital in a semiconscious condition with pulse 56, respiration 16, rectal temperature 99, and blood pressure 140/80. His physical examination was otherwise negative. Neurological examination revealed nuchal rigidity, bilateral choking of the disk, and hyperactive reflexes, but no localizing sign. Spinal puncture revealed a cloudy blood-tinged spinal fluid. The pressure was 500 mm. on entering, and withdrawing pressure was 140 mm.

The patient improved following this spinal puncture. X-rays of the skull and cervical spine were normal. He showed gradual improvement with daily spinal punctures, until the sixth hospital day when he suddenly went into coma. Blood pressure increased to 170/80, and respiration to 24. The pulse remained unchanged. The first sign of localization occurred with dilation of the right pupil. Pulse and respiration gradually became irregular and the patient developed generalized tonic convulsions.

Operation was performed under sodium pentothal and nitrous oxide-oxygen anesthesia. A trephine opening was made anterior to and above the right ear. The dura showed a blue discoloration and was under tension, bulging into the trephine opening. When the dura was incised, a large amount of dark, thick blood containing small clots was forcibly expelled. There was immediate improvement in the patient's condition. The small bleeding vessels were coagulated and the wound was closed except for a small gauze drain. His postoperative course was uneventful. Aureomycin and penicillin were given as a precautionary measure against infection.

Bibliography

1. Scott, Michael: Spontaneous Nontraumatic Subdural Hematomas, J.A.M.A., Oct. 1949.
2. Elvidge, Arthur R., and Jackson, Ira J.: Subdural Hematoma and Effusion in Infants, Am. Jnl. Dis. Child., 78:5, Nov. 1949.
3. Kennedy, Foster, and Wortis, Herman, Acute Subdural Hematoma and Acute Epidural Hemorrhage (A Study of 72 Cases of Hematoma and 17 Cases of Hemorrhage), Surg., Gynec. and Obst.
4. Marsh, Clemson, Hjartarson, G. David, and Courville, Cyril B., The Electroencephalographic Findings in Subdural Hemorrhage and Hematoma, Bull. Los Angeles Neurol. Soc., 1949.
5. Smith, George W., Mosberg, William H., Pfeil, E. T., and Oster, R. H., The Electroencephalogram in Subdural Hematoma (Review of the Literature and Presentation of Seven Cases), J. Neurosurg., May 1950.
6. Kennedy, Foster, and Wortis, Herman, Traumatic Subdural Hematoma: Acute Subdural Hematoma and Acute Epidural Hemorrhage, Surg., Gynec. and Obst., 63: 732-742, 1936.
7. Munro, D., Cerebral Subdural Hematomas: A Study of 310 Verified Cases, New England J. Med., 227: 87-95, 1942.
8. Peet, M. M., and Brock, S., Extradural Hematoma, Subdural Hematoma, Subdural Hydroma in Injuries of the Skull, Brain and Spinal Cord, Williams and Wilkins Co., 1940, xii, 133-159.
9. Garrison, History of Medicine, Ed. 4.
10. Adams, The Genuine Works of Hippocrates.

PATRONIZE JOURNAL ADVERTISERS

It is advertisers who make possible the publication of the Journal in its present form. They are deserving of your patronage.

Nephroptosis*

Alfred R. Sugg, M.D.

Ada, Oklahoma

Nephroptosis has been described for so long and so often, and is so well known, that another report on the condition and measures for its correction would not be expected to be hailed as news. It would seem that by this time the indication for the operation of nephropexy and the technique for its accomplishment should be at least as well standardized and accepted by most surgeons as is the operation for goiter or gallbladder, to name only two. Such is far from the case.

I frequently hear heated and acrimonious debate, even among urologists, as to the indications for the operation and even wider divergence of opinion as to the proper method of doing it. If the urologists cannot agree, it is hardly to be expected that the internists and others should approach the problem from anything like a common point of view.

For example, Horsley and Bigger's text states that the operation is seldom indicated and remark that it formerly had great vogue for many symptoms caused by nervous conditions, stasis and other intra-abdominal lesions. Of course this was written at "low tide" but nevertheless is accepted as gospel by many. It is the inevitable reaction to the abuse of the procedure a few years previously.

But low rating of nephropexy is not confined to these more or less antiquated texts. Modern essayists condemn the operation without reserve.

The Mayo Clinic looks with a jaundiced eye on it, and only 21 pure nephropexies were done there in the decade 1935-1945—and their results even in this small well screened series were considered on the whole only fair at best.

On the other extreme another group reports a large series with up to 98 per cent satisfactory results and one operator even said 100 per cent cures. Now 100 per cent is a good score in any league and it would be fair to put that down as propaganda, or (what is equally misleading) as a perverted opinion as to what constitutes success.

With these and many other extreme pros and cons staring us in the face, when physicians like you and I start looking through the literature for help we meet only confusion and near chaos. It was for the sole purpose of trying to bring a semblance of order out of this state of confusion that I chose this subject to discuss with you today, and I do not believe we have to bore with too big an auger to do it. Operations of many kinds and especially this one, like women's hats, run to extremes. They simply get in style and are done without too close scrutiny of the indications, and finally some one wakes up to the fact that results are poor and writes an article which throws the fashion's trend into reverse gear and we go then to the other ridiculous extreme. A little horse sense is a mighty fine antidote for the disease of blindly following the leader.

The chief reason for such conflicting reports and conclusions is that the two sides are not talking about the same thing—i.e., there is a poor definition of terms and that produces nothing but futile and sterile argument in any debate—much talk but little light.

When we say the operation is a success do we mean (1) successful fixation, or (2) relief of the patient's symptoms?

It is quite possible to show a series of nephropexies with the kidney up plenty high and with a large percentage of the patients still complaining of their pain. On the other hand, in some cases when the fixation of the kidney leaves something to be desired so far as the postoperative pyelogram is concerned, we find the patient well and happy about his operation. As a matter of fact, poor relief of symptoms, especially pain, is due to the fact that the kidney is too well fixed.

Nephroptosis came into the lime-light with visceroptosis in general when the x-ray came into common use. There was a wave of enthusiasm for tacking up everything that seemed to have slipped down a few centimeters and to attribute all sorts of symptoms to minor displacements of viscera—colon, stomach, uteri, kidneys, and even ovaries. The "floating kidney" was attacked on the slightest provocation. Failures were frequent and inevitable. Then the pendulum swung to the other extreme—"No good at all." It's a pity that medical styles change with as little reason as for changes of styles in women's hats. We need here to strike a happy medium. Even pathological nephroptosis is often only one factor in the symptom complex. Much has been made in some quarters of the fact that after even successful nephropexy someone had to go further and do a gallbladder, ovary, appendix and what not.

This criticism is, of course, justified, but to put the shoe on the other foot I have seen several cases where multiple intra-abdominal operations had been done, where even the "irritable colon" had been treated for years without success, and when proper nephropexy was done the patient was cured. It is inexcusable (though often it's so) where the symp-

*Presented at the 93rd annual session of the Kansas Medical Society, Kansas City, Kansas, April 30, 1952.

toms are clear-cut and the findings are conclusive enough to indicate ptosis of the kidney and its resulting complications are at fault, many of the patients have been treated for months and years and frequently have been operated upon for every sort of pelvic and abdominal condition without relief of any kind.

The sad habit that is abroad in the land of labeling all vague complaints as neurotic is about to catch up with us.

We all must know by this time that psychoneurosis is a fact. We have now compromised a little and label more patients psychosomatic. It's my opinion that more exhaustive studies in this field will narrow the field of neurotics even more. One thing is certain —there is scarcely any more embarrassing situation than to have brushed off a woman for years with the usual palaver about her neurosis and then to discover her renal ptosis and have her recover completely when it is fixed. The emphasis here is to think of the ptosis and try to evaluate it along with all other possible pathology and not try to make either more or less of the condition than it deserves. Don't overlook malingering, however. I recently saw a patient who by every score should have been cured. She complained loudly until she succeeded in getting a pension, whereupon all symptoms vanished quickly and completely.

Of course, the position of the kidney has no connection with its function. Its chief business is to rid the blood stream of unwanted products of metabolism, and as long as it does perform that function, it makes no difference if it is behind your ear. The chief factor that determines whether a nephroptosis is surgical or not is the normal functioning of the kidney, and this function depends often upon the accompanying pathological conditions, such as perirenal adhesions and fibrosis, aberrant vessels, rotation of the kidney, etc.

Occasionally, as pointed out by Van Duesen, the very weight of the kidney itself, when it has been robbed of its normal supporting structures, produces sufficient pull on fibrous bands connected with the duodenum to produce definite and clear-cut symptoms that are generally accepted as due to disturbances about the duodenum, or at least of the gastrointestinal tract.

If the ureter is fixed and the kidney movable, the urine is required to flow uphill, around the curve, and down to the bladder. This will not go on for long without some chronic back-pressure, stasis, and the resulting infection which most frequently serves to bring the patient to the physician's office.

One of the most practical suggestions I can offer, therefore, in connection with nephroptosis, is to admonish you to think about it. Once that is done and a few simple procedures followed, the indications for surgery are not difficult to make out.

Chronic pyuria will almost always result from stasis. Pyelectasis, or moderate hydronephrosis, will almost always be present from chronic obstruction, and these are really the basic pathological findings.

Hydronephrosis will often produce pain. Flareups or acute exacerbations of chronic pyuria will produce the symptoms common to any infection.

With a known ptosis, this chronic pyuria and the frequent exacerbations of acute infection, limited to this one side, are always required findings before pathology is certain. If there is also definite evidence of back pressure, evidenced by pyelectasis, and if there is pain especially when the patient is up and is relieved by lying down, if the hydronephrosis is progressing, and if the ureter is long enough to permit replacement of the kidney to its normal position, I hold these findings alone to be sufficient justification for nephropexy. The condition may be bilateral, but is by far more frequent on the right side.

I doubt if there are cases limited to subjective symptoms alone which require surgery, because the situations described above will produce objective findings plenty soon, and until they are present it is folly to expect to clear up the ills of a psychoneurotic individual who has been told by some careless doctor that she has a floating kidney.

How are these tests confirmed? An x-ray examination of the urinary tract, with intravenous dye, being sure to do a flat picture before the dye, and to take one or more in the upright position, and to take a delayed film at least 20 minutes after the dye has been injected, is the first procedure. A normal kidney will be empty of dye in 20 minutes, or less. Disregard the degree of the ptosis, and look for evidence of infection and obstruction.

Each case should be checked with cystoscopic examination and retrograde pyelograms, bilaterally.

It is always wise before operating on a kidney to know for certain the condition of the non-operative side. It is of great importance to secure a divided specimen for microscopic examination, and it is particularly important to determine definitely the size and length of the ureter, else you may be embarrassed by attempting to replace a floating kidney that in reality is an ectopic one; if, in that event, you are not embarrassed, you should be.

Once the case has been carefully selected, and agreed that the ptosis is pathological and is producing morbidity, we are amazed to find an extreme divergence of opinion as to the efficacy of nephropexy.

Pure nephropexy has a rather rare indication, since in the great majority of cases some other minor pathology is present. For example: rotation, peri-

ureteritis, fibrotic band, aberrant vessels, etc., are given sufficient status to take the credit for part of the symptomatology, rather than attributing it all to the ptosis itself.

Having carefully selected the patient for nephropexy, the type of operation is, of course, of great importance. I wish to present a method which is simple, safe, and satisfactory, requires no special equipment, no unusual surgical skill, and most important, as least will do little or no harm.

I fully believe that when baskets, hammocks, etc., are used, even in the most skillful hands, many failures will be inevitable. I likewise can see no excuse for traumatizing, injuring and perforating the kidney.

If the ureter is sufficiently free, and a complete uterolysis should be done, removing all fibrous bands, aberrant vessels, etc., and if the case is really ptosis, the kidney will easily fall into its fossa. The trick is to keep it there.

You have seen mechanical devices of all sorts used, and in my opinion the operation has so often fallen into disrepute because of the attempts made to artificially support the organ with these artificial and extraneous devices.

If the kidney is sutured in an abnormal position, pain can be expected. There is no way of splitting the capsule, or perforating the kidney parenchyma itself, without inevitable damage, sometimes with serious complications.

It is wise, therefore, to permit the kidney to fall as naturally as possible into the bed, and to depend on biological and natural processes to keep it there. To this end, the kidney is completely stripped of fat, especially the posterior surface, but the pedicle itself need not be so treated. Mild irritation of the capsule with gauze sponge hastens inflammatory adhesions, but care should be used not to injure the kidney.

The next step: the kidney fossa should be stripped of fat, so that the kidney, when replaced, comes directly into contact with the muscle of the lumbar area. We have all used fat to prevent adhesions of tendons, and if not, we have at least used grease to keep the beans from sticking to the skillet. We cannot expect adhesions to form with a double layer of fatty tissue interposing. But when the fat has been removed, a very short time only is required to fix it, and if you do not believe it will stay fixed, undertake sometime a few months later to remove it. At the same time, it is not rigidly fixed, and slight movement on respiration is still possible.

Gerota's fascia, which has been opened to expose the kidney, is now plicated beneath the kidney in the most obvious manner. Of course, if this fascia had remained intact, and had not stretched, there would be no ptosis in the first place, but this structure is entirely too flimsy to produce a basket with enough strength and stability to hold the kidney up. It does, however, serve admirably to hold the kidney in position temporarily, especially with the patient in bed during convalescence.

It is important for the kidney to be placed in its natural position in the fossa, and no attempt should be made to force it to lie otherwise. It might be argued that the position, being somewhat abnormal, should be corrected, but the shape of the kidney, the length of the pedicle, scoliosis of the spine, and pressure from other abdominal organs, cannot be altered by the surgeon. It is better to try to get along with the inevitable and compromise rather than suffer complete defeat.

The textbook picture, and a preconceived notion of what a pyelogram should look like, are poor criteria for our guidance, and postoperative pain is not a factor unless the organ is forced into an abnormal position with reference to its bed.

One thing for sure, this method has done no harm. It is easy of accomplishment, and we have used it with great satisfaction for many years. Of course, our series is small, but it is large in comparison with those done in a large clinic where 400,000 operations are done, with only 21 nephropexies and with 50 per cent success.

Braasch at the Mayo Clinic says that the operation there is about 50 per cent satisfactory. In these 21 cases, four different techniques were used, indicating they were satisfied with none.

This method will produce a very much greater degree of success than that, and even if only 50 per cent are cured it is all right since no mutilation or harm is done. As a matter of fact, I have yet to see a complete failure, and such partial failures as have been seen can often be accounted for by not having adhered strictly to the indications set out above for the operation.

I have made no attempt to review the subject and give a lengthy bibliography. This is available to each of you. The series has been watched for several years, and the results are generally permanent.

I believe we are making a mistake equally bad when we fail to select our cases with great care before operating, and on the other hand, when we neglect and forego a fine operation, simply because enthusiasts and fashions cloud the picture.

The operation is my own adaptation of what Deming has taught for years. I have simply given you a report of my own experience for whatever it may be worth, and I will present a few films to substantiate the report and a short movie of the technique we employ.

PRESIDENT'S PAGE

Dear Doctor:

Now that the feuding, fussing and fighting on both sides of the fence have been happily resolved to everyone's delight, and the two candidates have been chosen along with their running mates for the good of the common man, one is entitled to retire to the shade and in the calm of the evening hold communion with oneself in order to calmly decide just what, if anything, may have been accomplished.

The vagaries and wonders of American politics are possibly not to be understood by the average American whose job, after all, is to keep the wheels turning. It is not unexpected, we think, that there should be in some instance some heartfelt complaining, and some very valuable constructive criticism. Too often the author of a better way is placated with the solemn thought or suggestion that there is little that one can do about it.

Here we believe is the place where one can be 100 per cent mistaken. It makes little difference if in one's own heart he is conscious of the fact that in a gradually, but surely, deteriorating natural situation he is treated to long winded, boisterous, illogical, inconsistent, and utterly false statements to the contrary, unless one resolves firmly and definitely to do something constructive about the present predicament.

This can be done by each of us as individuals if we have the necessary convictions and the initiative to try.

In our opinion the only answer to the evils of the present day is more education of the public in matters of national importance. We believe that factual information and the development of a process of continuing education is the answer to a continuing dependable desire on the part of the masses to return to safe and sane governmental practices. Until that can be accomplished, we will of necessity sell our votes to the highest bidder.

We, as doctors, can through the medium of our offices do an untold amount of good if we but take the time to further with short interviews such a program of education. This is good public relations. The thanks may be a bit slow in coming, but in the end will be none the less genuine. Some one has said that politics is a dirty business—how many of us realize that "dirty politicians" are elected by "good people" who don't bother to vote.

Your state society has a positive program concerning legislation. You should support it, and help in every way towards its materialization. It is founded on a major concept of the Society—better health for the people of Kansas—and as such it is consonant with the Kansas way, consistent with the public interest and in the American tradition.



EDITORIAL COMMENT

Swords Into Plowshares

There is a cartoon showing two cavemen dressed in leopard skins. One, a huge man, leans on his burly club. The other is slight. He is showing his friend a crudely made bow and arrow and says, "Look, I have invented an instrument of warfare so horrible it will put a stop to war forever."

Ever since that dismal day inventors have continued their search for the superlative, the culminating instrument of total destruction. Through the years periodic announcements have proclaimed its presence in the form of the Gatling gun, the tank, poison gas, T.N.T., the atom, and now the hydrogen bomb. But inventors are still at work with dreams of even deadlier weapons, and no single heartening evidence appears to portend the dawn of an era where swords will be beaten into plowshares.

However we might feel, and surely there is sufficient evidence about us to justify a pessimistic view, the above statement is not strictly true. In a world of intrigue, of spies and counterspies, of treaties and the abrogation of treaties, of avarice and slavery and conquest—in such a world there live those to whom the lives of men are significant.

The physician belongs to that group. There are many others also, but few whose lives present as dramatic a symbol of salvation, few whose achievements demonstrate as clearly that the instruments of war can be turned to productive, worthwhile purposes. The physician need not be reminded of this fact. He has experienced it. He lives this fact. He knows its truth.

The truth is recognized by everyone, but its tragedy lies in a matter of relativity. Destruction comes first, and after that is accomplished the physician is sent out to salvage what he can. Radioactive isotopes for medical care came after Hiroshima, not before. The emphasis is wrong.

There could be no point to all this discussion except for a matter of idealism. Faith, if you please. Faith in the significance of man which dwindles like a trembling candle before the glare of war hysteria. But it doesn't go out. It stays to kindle the light of a new and calmer day. That hope, stated simply, is just that man exists for some purpose other than slaughter.

Philosophers, poets and prophets through the ages have all said the same thing, but their words haven't stopped war. Economists and politicians have likewise failed, as have their treaties, their disarmament pacts, their negotiations. Fear has not been enough to turn the tide, so what is there left to be done?

The answer is so utterly simple that it instantly becomes impractical. It merely involves a new thought on the worth of a human being. It extends into all phases of life the idealism now found in the practice of medicine. It is the saving of life instead of destruction. It is building schools instead of battleships. It is the construction of safe highways instead of war factories. It is the atom bomb used for industry and for healing the sick.

In the dim, vague future, perhaps. It cannot be done today, but it can be started. Governments founded on fear or on conquest cannot introduce this change, but a new idealism in the minds of a people can change government. Nothing can be accomplished until the people want it.

So who is in better position to crusade for such change than the medical profession? This change is not pacifism, or isolationism. It is larger than either. It is an awakened idealism, begun by the medical profession to teach all persons the value of life. One-half the objective is accomplished through the practice of medicine. The other half is hard to define.

Mix something of faith, a religious faith if you please, with something of pride in a person and he becomes confident and secure. Give him that type of security and he will carve his own destiny. There will be progress and there will be peace, but only after the other is accomplished, first by example and next through inspiration. The medical profession through its peculiar position holds the key to this power. It needs only to be turned to open the door.

Silly, you say? Perhaps, but how silly is what is happening now?

Health Insurance Planks

Although the complete platforms of the two major political parties received wide publicity at the time of the Republican and Democratic conventions last month, no special emphasis was placed on health insurance planks at that time. Since physicians will undoubtedly wish to study and compare these statements, they are printed below, without comment.

The following paragraph is from the Republican platform.

We recognize that the health of our people as well as their proper medical care cannot be maintained if subject to federal bureaucratic dictation. There should be a just division of responsibility between government, the physician, the voluntary hospital, and voluntary health insurance. We are opposed to federal compulsory health insurance with its crushing cost, wasteful inefficiency, bureaucratic dead weight, and debased standards of medical care.

We shall support those health activities by government which stimulate the development of adequate hospital services without federal interference in local administration. We favor support of scientific research. We pledge our continuous encouragement of improved methods of assuring health protection.

The platform adopted by the Democratic Party contains the following health insurance plank.

We will continue to work for better health for every American, especially our children. We pledge continued and wholehearted support for the campaign that modern medicine is waging against mental illness, cancer, heart disease and other diseases.

Research: We favor continued and vigorous support, from private and public sources, of research into the causes, prevention and cure of disease.

Medical Education: We advocate federal aid for medical education to help overcome the growing shortages of doctors, nurses, and other trained health personnel.

Hospitals and Health Centers: We pledge continued support for federal aid to hospital construction. We pledge increased federal aid to promote public health through preventive programs and health services, especially in rural areas.

Cost of Medical Care: We also advocate a resolute attack on the heavy financial hazard of serious illness. We recognize that the costs of modern medical care have grown to be prohibitive for many millions of people. We commend President Truman for establishing the non-partisan commission on the health needs of the nation to seek an acceptable solution of this urgent problem.

The Physician Draft

The coming months will bring the problems of medical mobilization increasingly to bear upon many more Kansas physicians and communities. The seriousness of this situation is reflected in a statement issued by the Kansas Volunteer Advisory Committee to Selective Service. It is not a pleasant prospect. Physicians will find their course of living altered, communities will lose doctors to the armed forces, the Kansas Plan will be interrupted.

This story represents a forecast based upon the most reliable present information that can be obtained, and is presented to the physicians and the communities of Kansas at this time to enable those who will be affected to plan for the future with these facts in mind. Since your state advisory committee cannot alter the course it is required to follow, it is giving you the complete picture at the earliest possible time.

Category I (physicians with A.S.T.P. or V-12 training and less than 90 days' service in the armed forces exclusive of intern training) is about exhausted on a national level. Those that remain have for the most part been deferred for essential reasons and cannot expect that situation to continue, regardless of community needs. In other words, the deferment was not granted as a benefit for the physician but as an extension of time in which the community was expected to obtain a replacement. Their failure to find another physician is now to be attributed to lack of effort and, except for rare instances, these Category I physicians will be ordered to duty in the near future. Requests for extension of deferments will generally be denied, unless the community has shown continuous and unsuccessful efforts to obtain a physician.

Category II (physicians with A.S.T.P. or V-12 training who have served more than 90 days but less than 21 months with the armed forces) represents a small number. They will soon be called to active duty and the entire category will become exhausted in a very short time.

Category III (physicians who have not served with the armed forces subsequent to Pearl Harbor) will be the next group called. This will begin by the first of the year or earlier. They will shortly be directed to take their physical examinations for the purpose of classification. Other things being equal, the youngest will be called first.

Category IV (physicians who have served with the armed forces since the beginning of World War II) will not be called until Group III is exhausted, and presumably they will not be needed at all unless the induction rate increases. When called, these veterans will return to active duty in the inverse ratio of the length of time they have served.

The medical schools of this nation are currently graduating something over 7,000 physicians annually. The majority of these, perhaps 70 per cent, are veterans who will be classified in Group IV. Of the remainder, a considerable number are women, foreign students and men who cannot meet the physical requirements to enter service, so only a relatively small group of new graduates will fall into Group III. There are almost none in I and II. Therefore, this will not continue to be a significant immediate source for medical officers.

Medical reserve officers with more than 21 months service are not being recalled at this time, except in rare instances where an individual physician is needed because of his peculiar training or experience or because he is in the organized reserves. This group is already in service and may be recalled whenever conditions require.

The general situation has altered at this time because Group I has been exhausted and because the first large number of medical officers to have

served in the Korean conflict are being released during the coming fall. They must be replaced largely with physicians in Category III.

During the months to follow the Journal will carry the names and addresses of the medical officers from Kansas who expect to be released. It is suggested that physicians or communities who desire additional medical help write to these officers. As time continues this will become the most useful source of physicians for Kansas and finally, but not at once, should balance the loss suffered under the mobilization effort.

Future deferments may be granted, as in the past, in situations where an area would suffer because of the loss of a physician. Too many communities mistakenly consider such action as permanent, which it is not. It is an extension of time to permit the community to obtain another physician, and it is nothing more. Following one deferment and rarely a second, for truly unusual conditions, the physician will be called to duty even if his essential status remains unaltered.

Communities are further advised against considering replacement by physicians in Categories I, II or III as adequate since these, if physically acceptable to the armed forces, are just as vulnerable for service as the physician they lost.

Many doctors inquire concerning whether or not they should voluntarily apply for a commission. This is a difficult question to answer since the decision must rest with the individual involved. The factors influencing his decision are simple, as follows:

All eligible physicians will be called to serve in approximately the order cited above. The Kansas Volunteer Advisory Committee has no power to exempt anyone from such duty. It acts only on the basis of community hardship to determine when a physician shall go. This committee may temporarily delay but never prevent his entry into the armed forces.

The physician who becomes a reserve officer may generally select the service he prefers. He receives the considerable advantage of a bonus income and is still eligible to deferment if such request appears justified. So within those considerations, the individual must make his own decision.

The Kansas Volunteer Advisory Committee is sending the following letter to the Chamber of Commerce, or other responsible citizens, of each of the 10 or so communities in this state where a physician has been deferred. It is reprinted here to advise the medical profession and to invite physicians to submit to these communities the names of medical officers about to become separated from service. The letter follows:

The information in this communication is of great importance to you and to your community. Please read it carefully and completely.

The Kansas Volunteer Advisory Committee to Selective Service, after consultation with the local advisory committee of your community, has requested the..... for deferment for Dr. It must be under-

Service Separations

As a service to physicians and communities in this state desiring additional medical personnel, the Journal of the Kansas Medical Society will publish in this column each month the names of medical officers who will shortly be separated from the armed forces. These are men who volunteered from Kansas, and many of them will probably be interested in finding locations in this state. Anyone interested in contacting these physicians may write to the address here given.

Robert W. Meyers, M.D.
210 South Pine
Newton, Kansas

Joseph E. Seitz, M.D.
Wakeeney, Kansas

John L. Weaver, M.D.
4206 Prairie Lane
Mission, Kansas

George A. Westfall, Jr., M.D.
Hertzler Clinic
Halstead, Kansas

Niles A. Borop, Jr., M.D.
U. S. Army Hospital
Camp Carson, Colorado

Herbert Bunker, Jr., M.D.
U. S. Army Hospital
Fort Riley, Kansas

Charles C. Gilkey, M.D.
1731 Clay Street
Topeka, Kansas

Charles R. Hopper, M.D.
172 Artillery Loop
Fort Sam Houston, Texas

Edwin R. King, M.D.
1708 First Street, N.W.
Washington 1, D. C.

Harold Korner, M.D.
U. S. Army Hospital
Branch U. S. Disciplinary Barracks
Lompoc, California

Walter J. Nowers, M.D.
305 Handy Circle, Van Horne Park
Fort Bliss, Texas

Robert L. Stevens, M.D.
Oskaloosa, Kansas

Richard C. Tozer, M.D.
Winter V.A. Hospital
Topeka, Kansas

Robert Weimer, M.D.
206 Third Street
Fort Leavenworth, Kansas

stood that this request is for a temporary period of time only and that Dr. will be declared available as soon as a suitable replacement is obtained. Public Law 779 states and the Selective Service System has repeatedly declared that all doctors in Priority I, II and III will have to serve a tour of duty in the armed forces. Therefore, it is not a question as to whether they will serve, but when they will serve that tour of duty. There are not and cannot be any permanent deferments. Dr. is in Priority.....

The deferred classification that we requested for Dr.....is therefore for the single purpose of permitting you and your community a period of time to obtain a replacement for your doctor. It is not the responsibility of the Kansas Volunteer Advisory Committee to find you a doctor. Neither is it the responsibility of the Kansas Medical Society to find you a doctor. It is your responsibility. We will be glad to aid you to the extent of our capacity, which is indeed quite limited.

The main sources of doctors are the institutions where they are now in training (hospitals accredited for intern or resident training) and those doctors who are currently or will soon be released from the armed forces following the completion of their tour of duty. Do not enter into agreements with doctors who are in Priorities I, II or III as they are service-liable and cannot be declared essential just because they choose to locate in a community where a doctor is needed, either as a replacement or otherwise. Doctors may also be obtained through advertisement in the medical journals and requests through placement bureaus.

The time to start looking for a doctor is now. Do not expect to find one two weeks before the deferment of Dr. has terminated.

Many of the communities for whom we have recommended a deferred classification for their doctor have made no concerted efforts to obtain a replacement. Therefore, the Kansas Volunteer Advisory Committee hereafter will declare each Priority I, II and III doctor available at the end of his deferment unless the members of his community can prove that they have made a continued and conscientious effort to obtain a replacement and that this effort has been unsuccessful. Remember please that we cannot consider a doctor in Priority I, II or III as an adequate replacement.

FCDA Buys Blood Extender

The Federal Civil Defense Administration expanded its emergency stockpile of medical supplies recently by placing the first order in this country for a completely synthetic blood extender. A contract to purchase 1,200,000 pints of PVP-Macrose was awarded to Schenley Laboratories.

The blood extender is being stockpiled because not enough blood or plasma is immediately available to treat casualties resulting from even a single atomic attack on a metropolitan center in the United States. Purchase of the extender does not in any way affect the volunteer blood donor program carried on by the Red Cross.

PVP-Macrose was discovered in Germany in 1939 and was used by the Germans in treating more than 500,000 battle casualties of World War II. It has been used experimentally at a number of hospitals in this country for more than a year.

The synthetic product has been found to be satisfactory in the emergency treatment of shock due to trauma, surgery, hemorrhage or burns. Injection of the blood extender in sufficient amounts will maintain circulating volume in an injured person for 12 to 24 hours. Chemically, PVP-Macrose is 3.5 per cent by weight of polyvinyl pyrrolidone. It is in fluid form and is bottled in a ready-to-administer 500 cc. container.

While the product cannot duplicate the physiological functions of human plasma or whole blood, three advantages are found: (1) it is completely synthetic and can be made in virtually unlimited quantities at low cost; (2) it does not require refrigeration or drying for stability and can be stored indefinitely in liquid form ready for use, and (3) it is well suited for use under disaster conditions as an emergency life saving measure during the first 12 to 24 hours. Blood and plasma will still be required for continued treatment.

Charges for Radioisotopes

The U. S. Atomic Energy Commission will charge 20 per cent of production costs for radioisotopes to be used in the study, diagnosis or treatment of cancer, effective on July 1, 1952, ending the program of free distribution begun in 1948. More than $1,400,000 worth of radioisotopes has been distributed.

The free distribution program was established originally to provide a stimulus for exploration of methods of using radioisotopes against cancer. The field has developed so rapidly that certain clinical applications of radioisotopes now have become a matter of routine.

Radioisotopes are being used in the study of a number of other diseases, such as heart disease and hyperthyroidism. However, the full production cost has been charged for isotopes used in studies of diseases other than cancer.

A table showing the prices per millicurie which will be charged for cancer use, contrasted with charges for non-cancer use, lists radioiodine 131 as 15 cents and 75 cents; radiophosphorus 32 as 22 cents and $1.10; radiogold 198 as 5 cents and 24 cents; radiocarbon 14 as $7.20 and $36.

BLUE SHIELD

Changing Public Relations Emphasis

There are major differences between the benefits and contract provisions of Blue Cross-Blue Shield and those of insurance companies. This fact, together with the tendency of the public to buy health insurance with its eyes closed, has led to a changing emphasis in Blue Cross-Blue Shield public relations.

The new emphasis is to throw the spotlight on the major differences in approach, benefits and contracts. The old way was to tell our own story and hope the public would find out for itself that Blue Cross-Blue Shield has the best program. But, there was an important weakness in the old approach. That weakness was this: Only the few people who use their contracts ever find out how to evaluate them.

Hypothetical Case

An insurance company, if interested primarily in high profits, may offer to the public a contract with low benefits, many exclusions, and much fine print, and might easily enroll a great many people before the public understands what is happening. Let's assume that such a company enrolled 100,000 people in Kansas on a low benefit contract which provided very inadequate protection for today's needs in hospital and medical care. In the first place, the primary appeal would be based on the lower rates necessary for such a contract. During the first year less than 15,000 policy holders would have first hand experience with the contract. The other 85,000 would go into a second year without having had any chance to evaluate their protection. Of those who used the contract, a large segment would have incurred relatively small hospital and medical bills. On such bills the low benefit contract would have seemed fairly adequate. Therefore, perhaps less than five per cent of the total 100,000 policy holders would have had a chance to understand that their protection was inadequate. Incidentally, many of those who had serious cases would also learn that the company would not be willing to renew its policies.

The fallacy in assuming that people will understand insurance protection and will consistently buy the right kind of protection lies in the fact that the bitter experience of the few does not reach the many very rapidly.

New Advertising Approach

In its new advertising approach Blue Cross-Blue Shield hopes to carry out an educational campaign designed to show the public how to evaluate insurance contracts before they buy. By setting up certain simple criteria for such an evaluation and by frequent repetition of these criteria, it is expected that the public will learn to discriminate before it is too late. While this educational program has not yet been fully implemented, much of the campaign advertising during recent community enrollments has followed this new approach. The major theme in the new advertising will say in effect that Blue Cross-Blue Shield provides more for your money and gives you the best protection for your major needs. These statements will be documented with factual cases and statistical information which will show that Blue Cross-Blue Shield returns a higher dollar value to its members. Subsidiary themes will attempt to set up the criteria on which sound judgment may be based. Some of these points are as follows:

1. A plan that offers service benefits instead of limited cash payments will better meet the individual's need in serious cases.
2. A plan should cover all types of illnesses instead of limited groups of illnesses. (For example, a great deal of public acceptance for special polio policies has been noted in the past several years.)
3. A plan which requires lengthy health statements and waiver of pre-existing conditions is likely to prove disappointing.
4. A plan should be able to demonstrate low operating expenses and consequently high dollar value in the form of benefits returned to members.
5. A plan should be easy to use, free of red tape and the necessity for elaborate claim forms.

The public relations department of Blue Cross-Blue Shield hopes to boil these basic criteria down into simple terms which may be easily understood by the public in order that a long range highly repetitious public education program may be launched.

Physicians are in an unusual position to help educate the public along these lines. It is our understanding that a great many doctors are asked by their patients what type of protection they should have. Here is an opportunity for the physician to steer people into a program that has consistently delivered services they said it would deliver and also the plan which has set its aims to cover needs of people rather than to make profits.

Golden Belt Society Meeting

A meeting of the Golden Belt Medical Society was held at the Manhattan Country Club on July 10 with members of the Riley County Society as hosts. The afternoon scientific program was presented by Dr. Andrew D. Mitchell of the University of Kansas Medical Center, who spoke on "Congenital Anomalies of the Genitourinary Tract," and Dr. Thomas J. Luellen, Wichita, who discussed "Fluid and Electrolyte Balance in Medicine and Surgery." A report of activities of the state advisory committee was given by Dr. Henry N. Tihen, Wichita. A business meeting followed a dinner and social hour.

Case Reports from the University of Kansas Medical Center

Tumor Conference*

Ovarian Tumors

Edited by H. I. Firminger, M.D.

Dr. Helwig: The two cases to be presented are tumors of the ovary, one occurring in the premenarcheal and the other in the postmenopausal period. Questions concerning the clinical diagnosis in each case were answered by surgical intervention and pathological examination.

Case No. 52-57

C. R., a 22-month-old white girl, had a cough, fever and rhinorrhea of two weeks' duration, which abated about April 15, 1952. On April 27 the child developed fever and increased irritability, followed by abdominal distention and abdominal pain on April 28. The pain increased, vomiting occurred twice on April 29, and intermittently profuse perspiration was present. During her present illness stools had been few in number and small in size. Physical examination revealed an acutely ill child, pale and moderately dehydrated. The temperature was 102°. The ear drums were slightly injected and the pharynx was erythematous. The chest was clear but breath sounds were coarse. The abdomen was moderately distended, questionably tender, and a suggestion of a mid-abdominal mass was present. The bowel sounds were few and faint.

The child was given fluids and antibiotics, and decompression was attempted. The abdominal distention increased, interfering with respiration. Paracentesis on May 2 revealed about 600 to 750 cc. of a serosanguineous fluid, following which a firm abdominal mass was palpated in the left lower quadrant. The patient was taken to surgery on May 3 for removal of the tumor.

Dr. Kittle: This case was particularly interesting because of the difficulties it presented in diagnosis. No one who saw the child on the first evening had any hesitation in stating that she did, in all probability, have a diffuse peritonitis, with perhaps a secondary paralytic ileus. The presumptive diagnosis was acute appendicitis. The rather vague history of nausea and vomiting was not a predominant feature and, in addition, the child had had a bowel movement each day, although the bowel movements were less than usual in quantity and slightly loose. We did not think that there was any degree of mechanical obstruction and we decided to observe the child.

During the next several days there was no further evidence of mechanical obstruction. There was no hyperperistalsis, which one would expect proximal to an obstruction due to a volvulus, a cyst or adhesive band causing obstruction; in addition, the child did not vomit even before we passed a tube for decompression. Finally, on the fifth day, we felt that there was free fluid in the abdominal cavity and did a paracentesis, which allowed easy palpation of a large mass in the left lower quadrant of the abdomen.

In retrospect, we might have gained an earlier clue to the diagnosis if we had more carefully scrutinized the x-ray findings, because I think in looking at this child with her marked abdominal distention and comparing the distention with the amount of gas-filled loops which are present in the x-ray, that there was a great disparity between the two signs, so that one would have to assume that some other structure was causing her abdominal distention. At the time of surgery it was an easy task to remove the large well-encapsulated soft mass which almost completely filled the space between the pelvic brim and the costal cartilages. It was freely movable and pedunculated; there were no adhesions anywhere to the peritoneum, or to any



Figure 1. Roentgenogram in case 52-57 revealing abdominal enlargement, gaseous distention of small bowel and a Miller-Abbott tube in the second portion of the duodenum.

*Cancer teaching activities aided by a grant from the National Cancer Institute and the Kansas Division of the American Cancer Society.

other sttucture. We surveyed the liver and other organs within the abdomen and there was no evidence of metastasis.

It was evident at the operating table that this mass occupied the usual position of the left ovary, and the left fallopian tube passed into it. The right ovary appeared normal, as did the uterus and the rest of the female genital organs. There was torsion of the pedicle of the tumor with a large bulging hemorrhagic area beneath the capsule (Figure 2). This undoubtedly caused the clinical symptoms suggesting acute appendicitis. Twisted ovarian cysts have been reported in children as young as four months of age. The diagnosis in such cases is usually confused with appendiceal abscess.[1] The presence of a sanguineous or serosanguineous fluid in the peritoneal cavity is the most suggestive finding.

Could we have the roentgenologic findings?

Dr. Weed: The film taken the second day of May, after the Miller-Abbott tube was passed, shows a coil in the stomach and the tip apparently in the second portion of the duodenum (Figure 1). There is small bowel gas collected into the central portion of the abdomen. A film four days later shows the tip of the Miller-Abbott tube at about the same level, yet there was some passage of gas on into the the colon.

Dr. Boley: On pathologic examination this tumor grossly was approximately 9 x 7 cm. (Figure 2). The tumor was well encapsulated, but the capsule was thin. It did not show the prominent blood vessels that so many malignant tumors have. In part it was hemorrhagic but this area was not well demarcated from the greater part of the tumor. The rest of the tumor was gray to white, with somewhat of a brain-like consistency, and there were small cysts scattered throughout the tumor.

Microscopically two types of cells comprised the tumor; one was elongated and spindle-shaped, often arranged in bundles, the other more plump and epithelial in character. The multiple small cysts noted grossly were usually lined by the epithelial type cells arranged in a radial pattern about the lumen. Fat stains reveal small fat droplets in the stromal cells in some areas, but it is not uniform throughout the tumor. As to mitoses in the tumor, the ones that I have been able to find are in the epithelial cells lining the cysts rather than in the stroma. There were almost none in the stromal element. I was inclined to think that this tumor was composed of a combination of granulosa and theca cells, and I would like for Dr. Stoddard to present a different view of it.



Figure 2. Cut section of partly hemorrhagic ovarian tumor in case 52-57.

Dr. Stoddard: I think this tumor may belong to the group of functional ovarian tumors just mentioned by Dr. Boley. However, Dr. Boley and I agree that the cysts in this large tumor have not yet been thoroughly sampled. They might perhaps be serous cysts or epithelial structures indicating that we deal with a teratoma. A few teratomatous elements sometimes are found in large ovarian tumors after extensive searching.* I think that is a possibility that should not be overlooked.

Dr. Stowell: Would Dr. Stoddard comment on the frequency of finding both theca and granulosa cells in tumors of this kind, if one cuts a sufficient number of blocks?

Dr. Stoddard: If one makes lantern-slide size sections or cuts many blocks, it is frequently possible, I think, to find all the described histologic variants of granulosa cell tumor in one tumor; so all the descriptions of patterns from one tumor to another are really pointless. Also, thecal areas often are found in granulosa cell tumors, especially about the follicle-like cysts lined by granulosa cells. Nevertheless, many tumors are either predominantly epithelial, that is granulosa cell, or predominantly spindle cell, that is, thecal. Fat may be found in both kinds of cells. In fact, if one has frozen sections from a number of different places—guided by the areas that are yellow—he usually finds a few areas that are luteinized. So I don't see much point in the separation of luteoma from granulosa cell tumor.

Dr. Helwig: Might we not occasionally have one that is almost purely luteal?

Dr. Stoddard: Well, yes, and I think that the best example of that that I have seen is folliculome lipidique. That tumor has a number of follicles, and the cells lining the follicles are luteinized granulosa-type cells.

Case No. 52-59

M. F., a 65-year-old colored woman, was admitted to the hospital on March 17, 1952, with a history of regular menstrual periods every 28 days until 1945, when she became amenorrheic for one year

*Additional sections subsequently revealed typical granulosa cells lining a number of the cysts.

and then had menstrual periods two to five months apart with a scanty flow for 5 to 20 days. The last episode of spotting was in August, 1951, with a scanty flow, and there had been no spotting since that time. Pelvic examination revealed a moderate sized firm uterus pushed anteriorly by a rather large firm mass in the cul-de-sac. This patient was thought to have a large fibroid uterus, but at operation this mass turned out to be a tumor of the left ovary. The right ovary was normal. Total hysterectomy and bilateral salpingo-oophorectomy were done. The patient was dismissed on April 6, 1952.

Dr. Helwig: Did you see any breast changes?

Dr. Hunter: None at all.

Dr. Boley: Grossly this tumor weighed 413 grams and was 3 x 4 x 9 cm. On cut section the tumor had a yellow color and a fibrous consistency.

Microscopically the tumor is composed of spindle cells that tend to be arranged in bundles and sheets. In some areas it seems as though the nuclei were tending to palisade, leaving little acidophilic or cytoplasmic processes that have been described in some of these tumors as hyaline-like bodies. The fat stain reveals areas in which there are numerous small droplets of fat in the cytoplasm of the tumor cells; these cells resemble theca cells.

The endometrium in this case was of some interest. This elderly woman should have had a thin endometrium; instead, she had a moderately thick endometrium. The stroma is not quite as cellular as in a typical Swiss cheese hyperplasia; neither is it as fibrous as most endometria of women of this age. The glands vary in size and show pseudostratification and crowding of nuclei. I think we can say this is a hyperplastic endometrium which is compatible with an ovarian tumor of the theca cell type.

Dr. Helwig: Is that lipid in her ovarian tumor doubly refractive as in other theca cell tumors?

Dr. Boley: Yes, it is, Dr. Helwig.

Dr. Helwig: Dr. Critchfield, will you discuss this case?

Dr. Critchfield: This patient is a postmenopausal woman who came into the hospital with the complaint of bleeding, and she had a fairly large ovarian tumor. That combination, of course, demands laparotomy in most instances.

I do think there are a few things that might have suggested the nature of this tumor. The theca cell tumor, along with the granulosa cell tumor, falls into the group of tumors that produce hyperestrogenemia. The fact that this woman had regular menses until she was 58 years of age, I believe, might in itself make us a little suspicious. Crossen[2] states that vaginal bleeding past the age of 50 years is probably abnormal, although we have seen normal ovulatory bleeding occur past 50. Certainly after 55 years of age we become suspicious. Had we had a dilatation and curettage prior to operation, we would have found this hyperplastic endometrium and would then have been a little more satisfied in our minds that we perhaps were dealing with one of the functioning feminizing ovarian tumors. However, because of the apparent mass and because in the enlarged irregular uterus we feel that we sometimes do not completely explore the uterine cavity with a curette, we decided to do a laparotomy.

This tumor was a little unusual in appearance. When a cut section was made at the operating table, we saw the yellow color. That yellow color always makes us think there is lipid material, and that always makes us think of granulosa cell tumor, or possibly thecoma. The granulosa cell tumor is merely one of the functioning feminizing tumors, and it is perhaps the most common of the various types. I think about 10 per cent of the solid ovarian tumors are granulosa cell tumors; according to some series, about four per cent of ovarian neoplasms are granulosa cell tumors. The thecoma itself derives from the theca interna cells, probably, in contradistinction to the granulosa elements, and there is a lot of discussion about the actual origin of these tumors. Novak[3] refers to them as the feminizing folliculomas because they all do apparently arise from rather early anlage.

At any rate, the thecoma is a fairly rare tumor. Up until 1938 only about 22 cases were reported in the literature. Even though they are a little more common than that, our interest in them was not spurred until the present day endocrinological technics and observations began. They can be rather small; they can be undetectable on pelvic examination. We had such a case here about a year ago, a tiny small focus in the ovary; however, it was apparently functioning. The textbooks usually describe these tumors as being from the size of a peach to the size of a baby's head. They can occur at any age; however, they do occur predominantly postmenopausally. The rate of malignancy is rather low. There is one series I recall that puts the incidence of malignancy in these tumors at only about 10 per cent.

If we are fortunate enough to see thecomas occur premenarcheally or postmenopausally, it helps in the diagnosis. In a pre-adolescent girl with early somatic and sexual development and an ovarian tumor, we can relatively safely assume that on exploration we will probably find a functioning tumor. The same thing holds postmenopausally; many of these women actually exhibit so-called "reflowering." Breasts become large, the vaginal endothelium becomes succulent and reveals estrogenic activity, and all of the signs and symptoms of what might be called a second adolescence occur. We can't go entirely on

the occurrence of secondary somatic changes, however, in making a diagnosis; we know that some 25 to 30 per cent of these tumors do not actually show estrogenic activity. That apparently has something to do with the ratio of the diagnoses of the granulosa cell tumor as opposed to the thecoma, because both the granulosa cell tumor and the theca cell tumor apparently do contain both of the elements in most cases. At any rate, if we see such phenomena postmenopausally, as we saw in this woman—that is, bleeding and a hyperplastic endometrium in the presence of an ovarian mass—I think one must consider the possibility of a feminizing tumor of the ovary.

In about 60 per cent of the cases, functioning ovarian tumors occur during the reproductive epoch of life. There the differential diagnosis preoperatively may be a little bit more difficult. I don't think it is too important preoperatively, probably, but usually we find only a slight irregularity in the menses with variation in the amount and duration of flow. In other words, the effect of these tumors during the reproductive epoch is usually to cause anovulatory ovarian function with hyperestrogenemia as distinguished from hyperovarianism, wherein all the functional elements of the ovary are equally stimulated. The only thing we might see in a case of hyperovarianism is increased fertility and perhaps increased twinning and an increased incidence of dermoids or teratomas.

In the present case perhaps the diagnosis should have been made, but in the absence of the curettage specimen I think as far as we could have gone preoperatively was that this patient had a solid ovarian tumor. At this age perhaps we would not be too far out on a limb in considering such a tumor as a possible ovarian carcinoma, but the factors pointed out should always remind one of a functioning tumor.

This woman had a total hysterectomy and a bilateral salpingo-oophorectomy. The problems are easy in a postmenopausal woman, unless she is a poor operative risk. Unless we run into unforeseen difficulties in surgery, I think the proper treatment in the postmenopausal or menopausal woman is to remove her uterus, tubes and ovaries completely. The problem is a little bit different if we encounter such a tumor in a woman during her reproductive epoch of life. Granulosa cell tumors particularly have a habit of recurring. However, I think that the better judgment in such an instance would be to do an oophorectomy and then watch the patient closely, bearing in mind that granulosa cell tumors do recur, the other ovary may be involved, or may become involved, and may actually undergo malignant change.

Dr. Helwig: I think it should be mentioned that the functioning cell is the theca cell, and all of the work that has been done on extraction and isolation of the steroid has shown its deposition in the theca element, since the granulosa cell element, even when transplanted as Aschheim and Zondek[4] did, shows no estrogenic activity. So even though you are dealing with a follicular form tumor which looks almost wholly granulosa cell, if it is functioning the functioning element will be in the theca component. Now as to the malignancy, the figures vary all the way from 50 to 5 per cent. In 1945 Jones and Te Linde[5] reported three cases, recurring 18, 20 and 21 years after primary removal. The actual malignancy figures have not been worked out on any large series, so far as I know.

Dr. Stoddard: Histogenetically all these tumors are from ovarian mesenchyme, so it is not surprising that one may find granulosal, thecal and luteal elements in the same tumor. However, it would seem to me that this tumor deserves to be distinguished from the mass of functioning, feminizing ovarian tumors. As I understand Dr. Boley, the tumor is a partially luteinized fibrous thecoma; and I think that kind of tumor, at least in my experience and in the experience of others, is probably the commonest functioning ovarian tumor. Many times the tumor is small. Tumors of this type are less likely to metastasize than are tumors of the type usually thought of as granulosa cell.

Dr. Helwig: I'd like to say if there are only 22 cases in the literature, there are a large number that have not been reported. Perhaps they are not being reported any more because they are fairly frequent.

Student: I wonder if anyone has actually seen or knows of any reports of metastasis from this fibrous type of partially luteinized tumor?

Dr. Helwig: The only malignant ones that I have ever seen have been a form of granulosa cell. I've never yet seen one of these act as a malignant tumor.

Student: What does one usually see in the opposite ovary, if anything?

Dr. Boley: In this case there was some hyperplasia of the stromal elements in the cortex, so one wonders if a diagnosis of bilateral theca cell tumors might be in order.

Bibliography

1. Isaacs, H. E., and Schwartz, A. M.: Twisted Ovarian Cyst in a Three Year Old Child. Am. J. Surg. 41: 298-300, 1938.
2. Crossen, H. S.: Diseases of Women. C. V. Mosby Co., St. Louis, 1930.
3. Novak, E.: Gynecological and Obstetrical Pathology. W. B. Saunders Co., Philadelphia, 3rd edition, 1952.
4. Zondek, B., and Aschheim, S.: Arch. f. Gynäk. 130:1, 1947. Quoted by McKay, D. G., Robinson, D., and Hertig, A. T.: Histochemical Observations on Granulosa-cell Tumors, Thecomas and Fibromas of the Ovary. Am. J. Obst. & Gynec. 58: 636, 1949.
5. Jones, G. E. S., and Te Linde, R. W.: The Curability of Granulosa-Cell Tumors. Am. J. Obst. & Gynec. 50: 691-700, 1945.

Patronize Journal advertisers as an expression of your appreciation for their support.

ACTIVITIES OF MEMBERS

A feature story about Dr. R. R. Clutz, Bendena, was printed in a recent issue of the *Atchison Globe* in a section devoted to the Bendena community.

* * *

The Nelson Clinic, Manhattan, announces that Dr. Lew W. Purinton, formerly of Pleasanton, is now a member of its staff, specializing in internal medicine. Dr. Purinton is a graduate of the University of Kansas School of Medicine and for the past three years has been resident physician in internal medicine and psychiatry at the Colorado State Hospital, Pueblo.

* * *

Dr. Lucien R. Pyle, Topeka, has been named to a four-year term on the Advisory Hospital Council to the Kansas State Board of Health. The appointment was made by Governor Edward F. Arn.

* * *

Dr. Edgar F. Ewen, Chanute, began a fellowship in surgery at the Mayo Clinic, Rochester, last month.

* * *

Dr. Christine Thelen, Wichita, was elected director of the Fifth District for the Kansas Business and Professional Women's Club at the organization's convention held in Wichita last month.

* * *

Dr. A. J. Rettenmaier, Kansas City, was recently appointed to the newly created joint board of health for Kansas City and Wyandotte County.

* * *

The Arkansas City Medical and Surgical Clinic announces that Dr. Ernest D. Erickson is now a member of its staff. Dr. Erickson recently completed a three-year residency in internal medicine in the University Hospital at Iowa City, Iowa.

* * *

Dr. Charles S. Davis recently reopened his office in Galena after an absence of 15 months while serving in the Army Medical Corps in Korea and Japan.

* * *

Dr. Yale E. Parkhurst, Belle Plaine, has purchased the Laura Grant Home for the Aged at Udall. The home has facilities for 24 patients.

* * *

A feature story in the *Florence Bulletin* last month honored Dr. and Mrs. L. S. Wagar, who have lived in Florence for 50 years. Dr. Wagar retired from practice in 1944.

* * *

Dr. Henry Aldis, Shepherdstown, West Virginia, is becoming a member of the staff of the Main Street Hospital Clinic, Fort Scott, specializing in internal medicine and obstetrics. He is a brother of Dr. John Aldis, cardiologist at the clinic.

Dr. Corbin E. Robison, Hoisington, recently enrolled at the Cook County Graduate School of Medicine, Chicago, for postgraduate work.

* * *

Dr. William Burch, who has been practicing in Plains during the past year, was ordered to active duty with the Army last month, reporting at San Antonio.

* * *

Dr. George J. P. Gish, Frontenac, was the subject of a feature story in the *Pittsburg Headlight* on July 7. Dr. Gish has been in practice for 52 years.

* * *

Dr. George L. Harrington, who was a resident at Winter V.A. Hospital, Topeka, in 1946 and has since been a member of the staff, was appointed last month as assistant chief of professional services at the hospital.

* * *

Dr. C. W. Haines, Haven, announces that Dr. Robert C. Hull is now associated with him in practice. Dr. Hull, as a student at the University of Kansas School of Medicine, served his preceptorship under Dr. Haines and recently completed his internship at St. Joseph's Hospital, Wichita.

* * *

Dr. M. Leon Bauman, director of the Wichita-Sedgwick County Department of Public Health, announces that Dr. J. S. Anderson of Salina is now on the staff as a resident in public health work. Dr. Anderson is the only such resident in this area.

* * *

Dr. V. E. Chesky of the Hertzler Clinic, Halstead, announces that Dr. J. W. Welch is now a member of the staff, specializing in surgery. Dr. Welch, a graduate of the University of Kansas School of Medicine, is also a dentist, having been graduated from Northwestern Dental School in 1943.

* * *

Dr. Robert S. Young, who has been practicing orthopedics in Fort Scott since 1949, went to Pueblo, Colorado, last month to be associated in practice with Dr. D. W. Boyer, chief surgeon for the Colorado Fuel and Iron Corporation.

* * *

Dr. Garland L. Campbell, Arkansas City, announces that Dr. Edgar D. Hinshaw, a 1951 graduate of the University of Kansas School of Medicine who recently completed his internship at St. Margaret's Hospital, Kansas City, is now associated with him in practice.

* * *

Mercy Hospital, Independence, announces that Dr. Vernon M. Lockard and Dr. Frederick Wallingford of Bartlesville are now in charge of the hospital's department of radiology.

Dr. J. L. Lattimore, Topeka, was recently re-elected president of Kansas Blue Cross, and the following were re-elected to the Board of Directors: Dr. H. O. Bullock, Independence; Dr. Thomas P. Butcher, Emporia; Dr. G. E. Kassebaum, El Dorado.

* * *

Dr. A. C. Mitchell, who has been practicing in Clyde during the past year, closed his office July 1 to begin a year's postgraduate work at the University of Kansas Medical Center.

* * *

Dr. B. C. Beal, Clearwater, recently became a member of the Sedgwick County Medical Society's 50-Year Club.

* * *

Dr. Robert L. Kasha, Wichita, announces that Dr. Floyd B. Grillot is now associated with him in practice.

* * *

Dr. Edward D. Greenwood, formerly director of the department of child psychiatry at the Menninger Foundation, Topeka, was recently named special assistant to Dr. William C. Menninger and consultant in child psychiatry.

* * *

Dr. Yale E. Parkhurst, Belle Plaine, is a Republican candidate for the office of coronor of Sumner County.

* * *

Dr. E. A. Nelson, Phillipsburg, began a lengthy vacation August 1 and is planning a tour of Europe.

* * *

Dr. Orville S. Walters announces that Dr. William P. Hibbett is now associated with him in the practice of medicine and surgery in McPherson.

* * *

The Arkansas City Medical and Surgical Clinic has appointed Dr. John W. Franklin, formerly of the University Hospital, Iowa City, Iowa, to its staff. Dr. Franklin will practice internal medicine.

* * *

Dr. Lorin Dickelman, formerly of Port Huron, Michigan, is now serving as pathologist at two hospitals in Hutchinson, Grace and St. Elizabeth's.

* * *

Dr. B. S. Morris, Quinter, has two new associates, Dr. Herman W. Heisterman and Dr. Carl C. Gunter. Both were graduated from the University of Kansas School of Medicine in 1951 and recently completed internship at General Hospital, Kansas City, Missouri.

* * *

Dr. D. Cramer Reed, Wichita, announces that Dr. James T. Hamilton is now associated with him in practice.

Two physicians who were graduated from the University of Kansas School of Medicine last year recently jointed the staff of the state sanatorium in Norton, Dr. Vale Page and Dr. Arnold Pederson. Dr. Page served his internship at the Scott-White Hospital, Temple, Texas, and Dr. Pederson at Mercy Hospital, Des Moines, Iowa.

* * *

Dr. Edward E. Anderson, who has been affiliated with Dr. Clifford J. Mullen in the practice of ophthalmology in Kansas City for the past five years, has established a private practice in Davenport, Iowa.

* * *

Dr. David Rau, who completed his internship at Sacramento County Hospital last month, has joined the staff of the Longwood clinic in Stafford.

* * *

Dr. A. C. Eitzen, Hillsboro, announces that Dr. P. D. Ens is now associated with him in practice. Dr. Ens was graduated from the University of Kansas School of Medicine in 1951.

* * *

Dr. Horace M. Wiley, Garden City, announces the completion of a new building which will serve as a clinic for the diagnosis and treatment of cancer. His experience in that work includes three years on the staff of the Ellis Fischel State Cancer Hospital at Columbia, Missouri, and five years with the Sugarbaker Tumor Clinic at Jefferson City.

* * *

Dr. J. T. Swanson, formerly of Independence, is now radiologist at St. Thomas Hospital, Colby.

* * *

Dr. D. V. Conwell, Wichita, was recently elected a fellow of the American Geriatrics Society.

* * *

Dr. Robert L. Newman, University of Kansas Medical Center, has been invited to present a paper, "Some Observations on Serum Calcium and Phosphorus in Pregnancy," at the annual meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons to be held in Hot Springs, Virginia, September 4-6. Dr. L. A. Calkins, also of the University of Kansas Medical Center, is president of the association this year.

* * *

Dr. Harold H. Jones, Winfield, has been appointed clinical director of the State Training School at Winfield.

* * *

Dr. Philip C. Nohe has returned from Indianapolis where he spent 18 months as a resident in orthopedic surgery at Indiana University Medical Center and Methodist Hospital. He is now in Kansas City, limiting his practice to orthopedic surgery.

Senior Thesis from the University of Kansas Medical School*
Clinical Manifestations of Infections Caused by the Virus of Herpes Simplex**

Robert S. Terrill, M.D.
Kansas City, Missouri

A common error is to think of the virus of herpes simplex as the cause of "fever blisters" and "cold sores" and to overlook the extent and variety of disease that it may on occasion provoke in man. The virus of herpes simplex is one of the most common infectious agents of man. At present, the virus is known to be the causative agent of six disease entities, if all the various types of herpes simplex are included under one heading. The clinical conditions known to be due to this agent can be classified under diseases (a) of the skin, (b) of the mucous membrane, (c) of the eye, and (d) of the central nervous system.

The clinical nomenclature employed for the designation of the various manifestations of herpetic infection in man has been unsatisfactory. In the literature one finds such terms as herpes simplex, febrilis, labialis, recurrent herpes, idiopathic and symptomatic herpes. This indicates that in the past the classification has been based largely on clinical symptoms.

Herpes simplex virus is relatively large, falling within the group having a diameter greater than 100 milli-microns.[1] Inclusion bodies, found intranuclearly, were first demonstrated by Lipschutz in lesions of herpes genitalis and febrilis, and occur in the nuclei of those epithelial cells superficial to the vesicle. They are granular, eosinophilic, and measure from two micra up to the diameter of the nucleus itself. Several types of inclusion bodies have been described but only three varieties are worthy of mention: the "minute bodies" described by Da Fano; the Nicolau bodies, and the larger bodies of Lipschutz. The latter have the strongest claim to be regarded as the typical inclusion body of herpes febrilis.

The development of the technique using the embryonated egg as a method of propagation and study of viruses has been of major importance. Woodruff and Goodpasture[2] and Woodruff, Goodpasture, and Buddingh[3] demonstrated in 1931 the susceptibility of the chorioallantoic membrane of chick embryos to the virus of herpes simplex. The virus produces typical pocks on the membrane and characteristic intranuclear inclusions can be found histologically.

The virus of herpes simplex shows a tropism for both the skin and the nervous tissue. The virus not only tends to localize in a particular tissue, but it seems to exhibit a decided preference for young, growing cells. Herpes, when inoculated in the skin, gives rise to lesions along the lines of scarification, where young, rapidly dividing cells are being formed to replace the original tissue.

From a general point of view, herpes simplex virus may be considered as one of a group that usually produce fairly innocuous disease in their native hosts but which, when transferred to certain foreign hosts, often produce highly fatal disease by reason of their propensity to invade the central nervous system. Pseudorabies is apparently a trivial and often asymptomatic infection of swine.[4] When, however, the virus that causes it is transmitted to cattle, a serious infection of the spinal cord and brain ensues. As far as is known, "B" virus is commonly harmless to its native host, the monkey. On the other hand, there are known to date at least two fatal cases of "B" virus infection of man; both followed monkey bites.[5]

An understanding of the vagaries of herpes simplex infection in man has to rest in part on comprehension of what is meant by primary infection by the virus. Andrews and Carmichael[6] observed that a large proportion of normal adults had in their blood neutralizing antibodies against herpes virus, and that recurrent herpes occurred in those with neutralizing antibodies, while those without antibodies were free from infection. Burnet[7] interprets this to mean that once the human tissues have been invaded by the virus, it maintains itself more or less permanently. Since these findings appeared to be contrary to the usual pattern of infectious disease, and since herpes simplex did not seem to spread from patient to patient but seemed to be provoked by some nonspecific stimulus, Doerr (1938) suggested, "Herpes is not an infectious agent which is maintained by a chain of infection but that it is endogenously generated in the human organism." Subsequent studies dealing with the immunological relationship of the virus have made it clear that the virus behaves essentially like other infectious agents.

Although clinical manifestations of primary infection are usually severe when they occur, the comparative infrequency of such illnesses cannot account for the 70 to 90 per cent of adults who demonstrate that they have had a previous infection by the presence of circulating antibodies against the virus. There must therefore be numerous subclinical infections. Recovered individuals, whether

*This is one of 11 senior theses selected for publication by the Editorial Board from a group of 15 judged the best by the faculty of the University of Kansas School of Medicine.

**Thesis written while the author was a senior student at the University of Kansas School of Medicine. Dr. Terrill is now serving his internship at Menorah Hospital, Kansas City, Missouri.

from a manifest or subclinical infection, become carriers of the virus and are apt, following such nonspecific stimuli as fever, menstruation, administration of particular drugs, or emotional upsets to have recurrent manifestations in which the virus renews its activity to a clinical level. The result is usually the classical "fever blister" on the perioral skin or elsewhere on the face.

Herpetic Stomatitis. In considering the nature of the primary infection, it seems well established now that its most common form occurs during the first few years of life as stomatitis often accompanied by pharyngitis.[8,9] This infection, which should be called acute herpetic stomatitis,[10] is known by a score of other names. These include the following: aphthous, Mikulicz's, Vincent's, or ulcerative stomatitis; acute infective gingivostomatitis; or periadenitis mucosa necrotica.

Stomatitis in infancy and early childhood is a common condition, but the confusion in the terminology and classification reflects the lack of knowledge of the etiology of the condition. The common occurrence of the disease is shown by the fact that Burnet[9] investigated 12 patients during the months of October, November, and December in the Children's Hospital, Melbourne, Australia. The youngest patient observed was 12 month old. Most were between the ages of one and three years.

The symptoms of herpetic stomatitis are those of the local lesions plus general symptoms of toxicity, which are often moderately severe. Infants particularly are irritable and resent being nursed; they resist strongly the examination of their mouth and are disinclined to eat or drink. The temperature may be elevated to 103° F. for several days, and between periods of restlessness the child or infant is very drowsy; the clinical picture is rather different from that seen in most other febrile diseases of infancy.

The lesion begins as a reddened area, three to six millimeters in diameter, with a vesicular center which appears to spread and become purulent. It may be situated on the margin of the tongue, on the buccal mucous membrane, on the lips, on the pharynx or on the roof of the mouth. The gums are always hyperemic and swollen, but seldom have vesicles or ulcers. The lesions heal gradually, and the temperature subsides in the course of seven to fourteen days. Depending upon circumstances, primary herpetic stomatitis may assume epidemic proportions. Family outbreaks, customarily confined to small children, are not uncommon.

The reason for designating this disease as "primary" is based on the fact that one can with great consistency demonstrate the absence of specific antibodies at its onset and their apearance during convalescence. Primary infection of the same type has been shown to occur occasionally in adults. Rogers, Coriell, and group[11] report the clinical picture of primary herpetic infection as it occurred in three adult patients. The clinical picture is similar to the disease in infants, namely, an acute febrile illness with malaise, chilliness, multiple aphthous ulcers of mouth and pharynx, marginal gingivitis, and regional lymph node enlargement.

The methods by which positive diagnosis may be established in the laboratory are: isolation of the virus, demonstration of typical inclusion bodies in a biopsy specimen, and appearance of specific neutralizing antibodies in the serum during convalescence.

The sudden onset of fever, sore mouth, and regional adenopathy in a previously healthy adult immediately presents the problem of differential diagnosis. Probabilities include Vincent's infection, erythema multiforme, infectious mononucleosis, syphilis, agranulocytosis, acute leukemia, pemphigus vulgaris, and diphtheria of the pharyngeal or tonsillar region.

When the herpetic disease recurs, it does not usually take the form of stomatitis but recurs as clusters of vesicles on the skin of the face, most commonly around the mouth. It can be shown to be a recrudescence of herpes infection by the practically constant presence of specific antibody at its onset. Slavin[12] reports that he has seen primary labial herpes without stomatitis and has seen stomatitis due to simplex virus as a recurrent disease only twice. Isolated, recurrent aphthae of the mouth have not been shown to be herpetic.[13]

Generalized Skin Eruption. Extensive simplex infection of the skin has masqueraded for more than half a century as Kaposi's varicelliform eruption. It seems that at least three distinct disease entities are described under this title. In one group no virus can be isolated. In the second group the etiological agent appears to be a member of the variola-vaccinia group for Guarnieri bodies may be seen in the skin, and a virus with vaccinia-like properties may be isolated by suitable tests. In the third group, the herpes simplex virus may be isolated from the lesions, and neutralizing antibodies develop in convalescence.

This condition was first described by Kaposi in 1887 as a vesicular complication of pre-existing skin disease, most commonly eczema. In children, in whom the disease usually occurs, the onset is precipitous, accompanied by high fever and, about one-fourth of the time, is fatal. Appearing first only on previously diseased skin, the lesions may spread to normal, adjoining areas. Because it is not always obviously vesicular, the lesion may be mistaken for a secondary bacterial infection, or in milder cases, simply as an exacerbation of eczema. Kaposi's eruption is usually a primary herpetic infection although a few have been reported[14] in which herpes antibody was demonstrated in the circulating plasma at the

time of onset. It then appears that the virus may be disseminated by the blood and infect previously irritated skin despite the presence of specific antibody in the circulation.

Genital Lesions. A third manner in which primary simplex infection may occur is as a genital infection of both male and female. Herpetic eruptions are not uncommon on the genitals, being found on the glans or body of the penis, and in the female, on the labia. Little is known about the primary infection of the male. Slavin[12] reports a case in a boy whose illness began as stomatitis and in whom the genital lesion probably was the result of accidental autoinoculation. The skin about the meatus was reddened and covered by clusters of tiny vesicles. There was a small quantity of watery discharge and mild dysuria.

Slavin and Gavett[15] report three cases in females from 17 to 21 years of age. The symptom that led all three to seek medical aid was pain. In all of them the lesion was extensive, and contiguous lesions indicating autoinoculation of opposing mucous surfaces were seen in all. The ulcers were usually covered by a grey membrane, were tender, and some bled easily. The average duration of the illness was about 10 days. All the lesions healed without scarification and recurrence was not manifest as vaginitis but as typical clusters of vesicles on the labia pudendi. The so-called Lipschutz ulcer of the vagina, usually a single lesion that runs a more indolent course, has not been shown to be herpetic.

Lesions of the Nervous System. Although herpes is usually regarded as a mild local lesion, more serious manifestations may arise from time to time. There was considerable controversy at one time as to the etiology of von Economo's encephalitis, and herpes simplex virus was claimed by some as being its cause. It now seems unlikely that simplex virus is etiologically related to this condition.

Smith et al[16] report a fatal case of simplex encephalitis in a four-week-old infant. Other cases of proved simplex encephalitis have been reported occurring in both children and adults. They have followed no consistent clinical pattern and with one exception have all proved fatal. None of the cases of simplex encephalitis reported to date was known to have had herpes of the skin or mucous membranes at the time of or shortly prior to the onset of encephalitis. Herpes infection of the central nervous system is one of the rare encephalitides in which the virus may be recovered from the cerbrospinal fluid with some consistency.

A rare form of encephalitis presently known as "inclusion encephalitis"[17] may be confused on histopathological grounds with that caused by herpes simplex. Inclusion bodies similar to those of simplex infection are found in the brain. "Inclusion encephalitis" is probably of viral origin but as yet no infectious agent has been obtained from the nervous tissue of fatal cases.

Segmental Skin Eruptions. Sometimes herpes simplex virus produces segmental skin eruptions that resemble herpes zoster. Slavin and Ferguson[18] collected 16 cases from the literature and added five cases of their own. The sites most commonly involved by zosteriform simplex are those areas of the skin supplied by the trigeminal nerves and the sacral roots. This is unlike true zoster in which the eruption most frequently involves some part of the skin supplied by the dorsal roots. Zosteriform simplex also differs from true zoster in that it is often recurrent.

Herpes Cornealis. Herpetic infection of the cornea may assume a variety of forms, of which the dendritic ulcer is the best known. If seen very early, tiny vesicles may be seen on the cornea with the aid of a slit lamp. The vesicles soon rupture and coalesce to form superficial ulcers. Herpes of the face over some part of the skin supplied by the ophthalmic nerve is seen in some cases. Scarring of the cornea, usually not marked, may occur. The disease is notoriously recurrent. It seems certain that herpes simplex virus is not the only infectious agent that produces recurring dendritic keratitis.

Summary

A review has been presented of the disease patterns that the virus of herpes simplex may evoke in the human host. From this discussion it is evident that the virus which is so often associated only with "fever blisters" and cold sores" may on occasion provoke a variety of disease although infections are manifest primarily as disease of the skin and mucous membrane.

The unique immunological aspect of this disease has been discussed. It is not known where or in what state of activity the virus persists between its outbreaks of activity. It is known that the serum may have no antibody or a considerable amount of antibody.

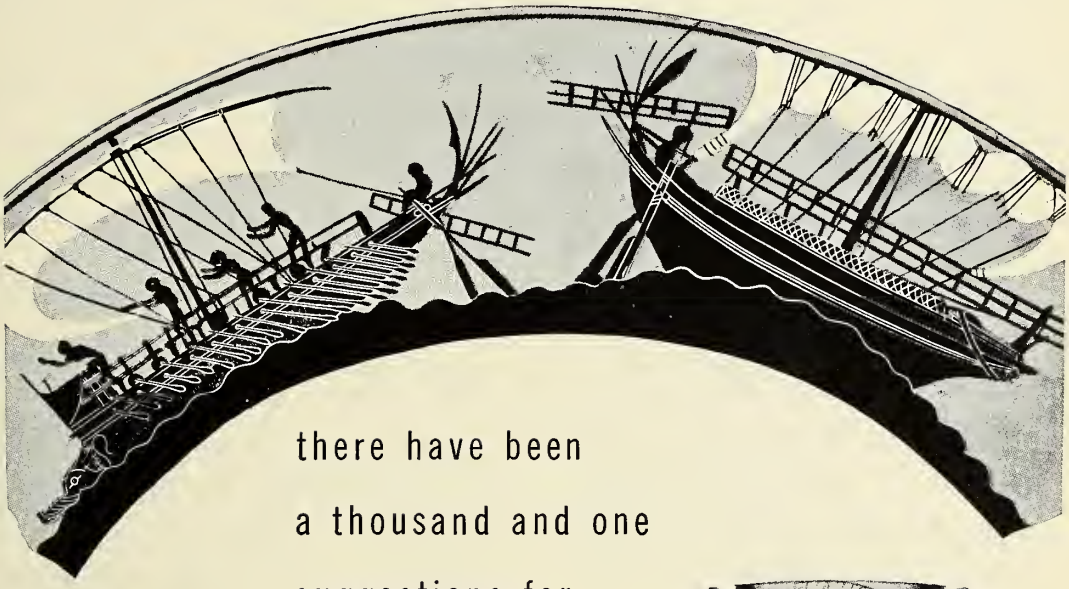
Primary infection by herpes simplex virus usually takes the form of aphthous stomatitis and generally occurs during the first few years of life, although a few cases have been reported in adults. Primary infections have been less frequently reported as genital lesions, as generalized skin eruptions, and as dendritic keratitis. At present herpes simplex infection of the nervous system is uncommon and diagnosis is made only by isolation of the virus from cerebrospinal fluid.

Bibliography

1. Van Rooyen, C. E., and Rhodes, A. J., 1948, Virus Diseases of Man, 2nd Edition, Thomas Nelson and Sons, Baltimore, Md., 1128-1236.

2. Woodruff, A. M., and Goodpasture, E. W., 1931, The Susceptibility of the Chorioallantoic Membrane of the Chick Embryos to Infection with Fowlpox Virus. Am. J. Path., 7, 209-222.

Ever since man went down
to the sea in ships



there have been
a thousand and one
suggestions for
the relief of
motion sickness.



War ship and merchant ship, abaut 500 B. C.; fram painted vase found at Vulci in Etruria, naw in the British Museum.

Now, relief from this age-old malady with

DRAMAMINE®

BRAND OF DIMENHYDRINATE

Available as: Tablets—50 mg.
Liquid—12.5 mg. per 4 cc.

SEARLE RESEARCH IN THE SERVICE OF MEDICINE



3. Goodpasture, E. W., 1931, The Cultivation of Vaccine and Other Viruses of the Chorioallantoic Membrane of Chick Embryos. Science, 74, 371-2.
4. Shope, R. E., 1935, Experiments on the Epidemiology of Pseudorabies. J. Exper. Med., 62, 85.
5. Burnett, F. M., 1946, Virus as Organism, Cambridge, Harvard University Press, 48-50
6. Andrews, C. H., and Carmichael, E. A., 1930, A Note on the Presence of Antibodies to Herpes Virus in Post Encephalitic and Other Human Sera. Lancet, 1. 857-858.
7. Burnett, F. M., and Williams, S. W., 1939, Herpes Simplex: A New Point of View. Med. J. Aust., 1, 637-642.
8. Dodd, K., Johnston, L. M., and Buddingh, G. J., 1938, Herpetic Stomatitis. J. Pediatrics, 12, 95.
9. Burnett, F. M., 1939, Herpes Simplex: A New Point of View. Med. J. Aust., 1, 637.
10. Van Rooyen, C. E., and Rhodes, A. J., 1948, Virus Diseases of Man. 2nd Edition, Thomas Nelson and Sons, Baltimore, Md., 169.
11. Rogers, A. M., and Coriell, L. L., 1949, Acute Herpetic Gingivostomatitis in the Adult. N. Eng. J. Med., 241, 330.
12. Slavin, H. B. and Gavett, E., 1946, Primary Herpetic Vulvovaginitis, Proc. Soc. Exp. Biol. and Med., 63, 343.
13. Blank, H., Burgoon, C. F., Coriell, L. L., 1950, Recurrent Aphthous Ulcers, J.A.M.A., 142, 125.
14. Ruchman, I., Welsh, A. L., and Dodd, K., 1948, Kaposi's Varicelliform Eruption. Archives of Derm. & Syph., 56, 846.
15. Slavin, H. B., and Gavett, E., 1946, Primary Herpetic Vulvovaginitis. Proc. Soc. Exp. Biology & Med., 63, 343.
16. Smith, M. G., Lenette, E. H., and Reames, H. R., 1941, Isolation of the Virus of Herpes Simplex and the Demonstration of Intranuclear Inclusions in a Case of Acute Encephalitis. Am. J. Path., 17, 55.
17. Brain, R., Discussion on Recent Experiences of Acute Encephalitis and Allied Conditions. Proc. Soc. Royal Med., 36, 319. 1943.
18. Slavin, H. B., and Ferguson, J. J., 1950. Zoster-like Eruptions Caused by Virus of Herpes Simplex. Am. J. Med., 8, 456.

Histoplasmosis must be taken into account in all routine x-ray surveys of population and differentiated from tuberculosis despite superficial similarities. Carefully controlled studies of the etiology of histoplasmosis in relation to conditions that vary geographically are very much needed.—*G. Arnold Cronk, M.D., N.Y.S. J. of Medicine, August 15, 1951.*

DEATH NOTICES

JOHN LILLIE EVANS, M.D.

Dr. J. L. Evans, 73, a member of the Sedgwick County Medical Society, died at his home in Wichita, June 25. He began practice in Wichita shortly after his graduation from Washington University School of Medicine, St. Louis, in 1904, and specialized in surgery. He was a diplomate of the American Board of Surgery, a fellow of the American College of Surgeons and a member of the Western Surgical Association.

His interests also included financial and civic organizations, and he served as chairman of the board of directors of the Southwest Federal Savings and Loan Association and vice president of the Southwest National Bank. His services to the Wichita Chamber of Commerce were as a member of its tax committee.

* * *

JAMES SUTHERLAND HIBBARD, M.D.

Dr. J. S. Hibbard, 47, a past president of the Sedgwick County Society, died July 9 from injuries received several days earlier in an automobile accident. His practice in Wichita had been limited to surgery, principally neurosurgery, which he had studied in France, Switzerland, Sweden and Canada. He had recently been engaged in a study of brain surgery for the relief of incurable epileptics.

Dr. Hibbard was graduated from the University of Kansas School of Medicine in 1929 and began practice in Wichita in 1935, leaving in 1942 to spend four years in the Navy Medical Corps as chief neurological surgeon at San Leandro, California. He was a diplomate of the American Board of Surgery and a member of the Western Surgical Association.

HAROLD WILLIAM PALMER, M.D.

Dr. H. W. Palmer, 53, Wichita specialist in internal medicine, died at his home on July 12 after suffering a heart attack. He received his degree from the University of Kansas School of Medicine in 1925, spent two years as an intern in Cleveland City Hospital, and did postgraduate work in Vienna before beginning practice in Wichita in 1930. During World War II he served in the Army Medical Corps.

Dr. Palmer was a diplomate of the American Board of Internal Medicine and was a fellow of the American College of Physicians.

* * *

EDWARD CARLYSLE RAINEY, M.D.

Dr. E. C. Rainey, 60, an active member of the Sedgwick County Society who had practiced in Wichita 27 years, died July 20 at a Rochester, Minnesota, hospital. After his graduation from Rush Medical College in 1920, Dr. Rainey began practice in El Dorado, moving to Wichita in 1925. He originally was a general practitioner but in recent years had specialized in obstetrics. During World War I he served in the Army Medical Corps.

* * *

EVERETT LUCIUS COOPER, M.D.

Dr. E. L. Cooper, 50, Wichita obstetrician and gynecologist, died July 22, after suffering a heart attack while vacationing in Minnesota. He was an active member of the Sedgwick County Society. Dr. Cooper was graduated from Loyola University School of Medicine, Chicago, in 1935 and began practice in Kansas shortly afterward.

50 and Five

YEARS TREATING ALCOHOL AND DRUG ADDICTION

In 1897 Doctor B. B. Ralph developed methods of treating alcohol and narcotic addiction that, by the standards of the time, were conspicuous for success.

Twenty-five years ago experience had bettered the methods. Today with the advantages of collateral medicine, treatment is markedly further improved.

The Ralph Sanitarium provides personalized care in a quiet, homelike atmosphere. Dietetics, hydrotherapy and massage speed physical and emotional re-education. Cooperation with referring physicians. Write or phone.

The
RALPH
SANITARIUM
Established 1897

Ralph Emerson Duncan, M.D.
DIRECTOR



529 HIGHLAND AVENUE • KANSAS CITY 6, MISSOURI

Telephone Victor 3624

ANNOUNCEMENTS

The 17th annual assembly of the United States and Canadian Chapters of the International College of Surgeons will be held in the Conrad Hilton Hotel, Chicago, September 2-5.

* * *

A Rocky Mountain Regional Institute on Alcoholism will be held in Denver, September 30-October 2, under the joint sponsorship of the Colorado State Department of Public Health, the Colorado Commission on Alcoholism, and the Office of Graduate and Postgraduate Education of the University of Colorado School of Medicine. Requests for information may be addressed to the University of Colorado Medical Center, 4200 East Ninth Avenue, Denver 20, Colorado.

* * *

The 9th annual meeting of the American Medical Writers' Association will be held at the Jefferson Hotel, St. Louis, on October 1, during the 17th annual meeting of the Mississippi Valley Medical Society, October 1-3, at the same hotel. There are no registration fees for the meetings. Programs may be secured from Dr. Harold Swanberg, W.C.U. Building, Quincy, Illinois.

* * *

The National Association for Music Therapy will hold its third annual meeting in Topeka, October 30-November 1, at the Hotel Kansan. Applications for active, associate or student membership may be made to Mrs. H. Dierks, 5050 Oak Street, Kansas City 2, Missouri. Members of the medical profession who are not members may attend by paying a registration fee of $5.00.

* * *

The 30th annual fall clinical conference of the Kansas City Southwest Clinical Society will be held in Kansas City, Missouri, October 6 through October 9. The session is being called "A Command Performance" as the list of speakers will be made up of physicians who have appeared on past scientific programs and were especially popular with those attending. Complete information will be carried in the September issue of the Journal.

* * *

A new requirement for certification by the American Board of Obstetrics and Gynecology was adopted by the board at a meeting held in Chicago in June. It provides as follows: candidates currently applying for admission to the examinations for certification are required to submit a list of all patients admitted to the hospitals where they practice, for the year preceding their application or the year prior to their request for reopening of their application, with the diagnosis, pathological diagnosis, nature of treatment, and end result.

The next scheduled examination (Part I), written examination and review of case histories, will be held in various cities of the United States on Friday, February 6, 1953. Applications must be made to the secretary prior to November 1, 1952. The secretary is Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6, Ohio.

* * *

The American Goiter Association offers the Van Meter prize award of $300 and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. Essays may cover either clinical or research investigations and should not exceed 3,000 words. Complete information may be secured from the secretary, Dr. George C. Shivers, 100 East Saint Vrain Street, Colorado Springs, Colorado. Closing date of the contest is February 15, 1953.

* * *

The Caleb Fiske Fund of the Rhode Island Medical Society has announced that the subject for the prize dissertation of 1952 is "The Present Status of Anti-Coagulant Therapy." Dissertations, not exceeding 10,000 words in length, must be submitted by December 1, 1952. Complete information may be secured from the Rhode Island Medical Society, 106 Francis Street, Providence 3, Rhode Island.

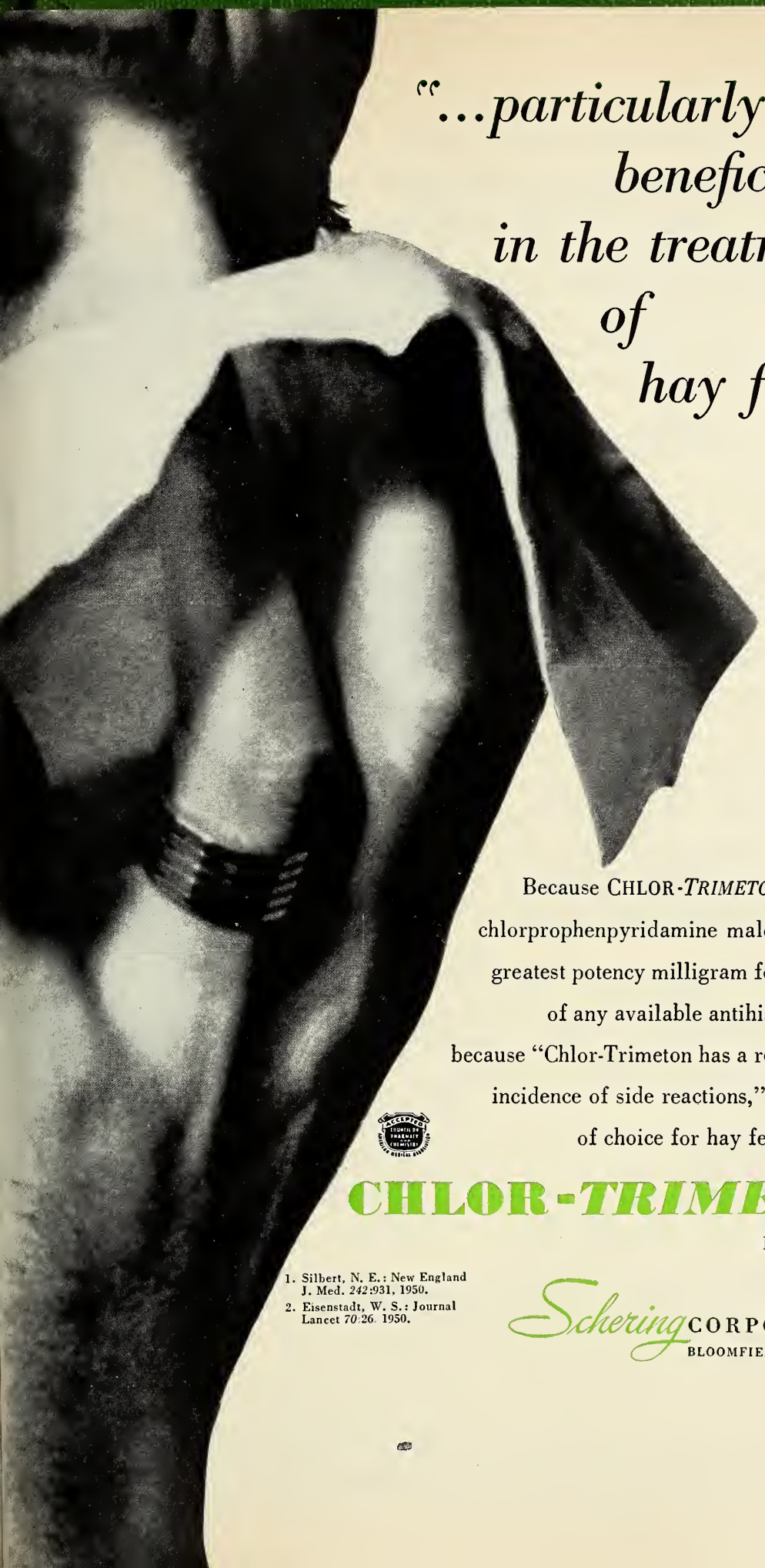
Change at Cancer Society

Mr. Harry M. Dawdy, executive director of the Kansas Division of the American Cancer Society, resigned that position August 1 to become executive vice president of the Missouri Division of the American Cancer Society, with headquarters in Jefferson City. That position was recently created in Missouri as part of an expansion program, broadening the base of the organization.

Mr. W. Miles Pulford, who has been associated with the Kansas State Board of Vocational Education for the past 12 years, has been employed to succeed Mr. Dawdy in the cancer society office in Topeka.

The Cook County Graduate School of Medicine, Chicago, has announced receipt of a donation of $100,000 from the Joseph and Helen Regenstein Foundation. The gift will be used to expand the school's activities in the field of graduate medical education.

Last year 37,100 Americans were killed in traffic accidents; 1,962,000 were injured.



"...particularly beneficial in the treatment of hay fever."[1]

Because CHLOR-*TRIMETON*® maleate, chlorprophenpyridamine maleate, has the greatest potency milligram for milligram of any available antihistamine, and because "Chlor-Trimeton has a relatively low incidence of side reactions,"[2] it is a drug of choice for hay fever patients.

CHLOR-*TRIMETON*
maleate

1. Silbert, N. E.: New England J. Med. 242:931, 1950.
2. Eisenstadt, W. S.: Journal Lancet 70:26. 1950.

Schering CORPORATION
BLOOMFIELD, NEW JERSEY

CHLOR-*TRIMETON*

SCHERING

ABSTRACTS FROM CURRENT LITERATURE

Effect of Heparin on Burns

An Experimental Study of the Effect of Heparin on Survival Time following Lethal Burns. By Parker D. Elrod, Robert S. McCleary, Con O. T. Ball, Surg., Gynec. and Obs., 92, 35-42, Jan., 1951.

It has been shown that red blood cells, passing through or near burned or traumatized tissues, agglutinate into small, hard masses. These masses pour into the general circulation and resist passage through all peripheral vascular beds, causing endothelial anoxia. Sludging causes general tissue damage by (a) reducing the rate of blood flow and oxygenation of tissue; (b) producing severe anemia as a result of ingestion of red cells by the phagocytes of the liver and spleen; and (c) initiating multiple venous thrombi and emboli.

An increase in viscosity of blood tends to decrease circulatory efficiency. Heparin given intravenously to humans, one milligram per kilogram, has reduced the blood viscosity from 7.1 to 5.8, 20 minutes after administration. With larger amounts of heparin, a drop from 6.8 to 3.8 has been observed.

Thirty-six dogs were studied under controlled conditions in which care was taken to be certain that the animals receiving heparin received slightly more severe burns than the 16 controls. Ten were given heparin immediately following the burn and 10 after a delay of two hours.

The controls lived an average of only 34.6 hours. The animals receiving heparin lived an average of 72.2 hours, over twice as long as the controls. The survival time of the two heparinized groups is practically the same. Hemoconcentration in the animals receiving heparin was less than in the controls. In the controls, decrease in concentration of albumin was 2.5 times greater than in the heparinized animals. The nonprotein nitrogen of the controls rose 28 milligrams per cent during the first 24 hours, and by the end of the second 24 hours the mean was 44 milligrams above the preburn values. The nonprotein nitrogen of the heparinized animals rose but 15 milligrams per cent during the first 24 hours, and actually dropped 8 milligrams during the next 24 hours. Urinary excretion: only 12 per cent of the controls excreted greater than 25 per cent of their intake, compared to 70 per cent of the heparinized animals.

Autopsy on all animals revealed no evidence of hemorrhage in the organs, or in the burn, as a result of the heparin. The edema around and beneath the burn was found to be definitely less in the heparinized animals.

Microscopic study of sections from the kidney of the animals frequently showed degeneration of the tubules, especially in the loop of Henle. The changes were similar to those seen in "lower nephron nephrosis." Almost all the animals died before time would permit the appearance of the completed picture of this syndrome. Sections from all groups surviving equal times showed much less damage quantitatively in the heparinized dogs.

The dosages of heparin in this experiment are comparable to those used in the treatment of patients with venous thrombosis.

It is pointed out that in burns one first gets hemoconcentration as the result of loss of fluids in large amounts. The local mechanism for reabsorption of water is damaged by a burn, and the only such mechanism remaining intact is the lymphatic system. It is recognized that the lymphatics in burned areas are frequently blocked by clotting of lymph. Glenn and associates showed that heparinization decreased or diminished this blocking of the lymphatics. This hemoconcentration is accomplished by a loss of proteins, with a greater loss of albumin than globulin. The increased osmotic pressure, produced by concentrated albumin, was ineffective in preventing continued fluid loss into the burned tissue. An analysis of the data from the experiments shows that the control animal lost two and one-half times as much serum albumin, during the first 24 hours after burn, as did the heparinized animal.

If heparin is so beneficial, one must wonder why the animals in this experiment did not live indefinitely. The answer would seem to lie in the fact that the dogs received: (1) no supportive treatment, that is, intravenous blood, plasma, aminoacids, or electrolytes; (2) no high-protein, dietary supplement; and (3) no antibiotics to prevent infection.

Heparin, it is felt, has been shown experimentally to be beneficial in the treatment of burns, both locally and systemically. A cautious clinical application of this drug to the therapeutic regimen for the burned patient seems indicated, and has been begun.—*T.P.B.*

* * *

Vitamin D Intoxication

Vitamin D Intoxication. By Hugh Chaplin, Jr., Lincoln D. Clark, Marian W. Ropes, Am. Jnl. Med. Sci., 221:4, 269-378, Apr., 1951.

In the past 20 years, vitamin D has been used extensively in large doses over long periods in the treatment of such diseases as pulmonary and cutaneous tuberculosis, scleroderma, various allergic states, and especially rheumatoid arthritis. Within the past 20 years, at least five deaths have been reported due

Now Offering to the

MEMBERS OF THE KANSAS MEDICAL PROFESSION

A Lifetime Income Protection

WITH SPECIAL RENEWAL AGREEMENT

Issued by

UNITED INSURANCE COMPANY

CHICAGO, ILLINOIS

SICKNESS OR ACCIDENT
(Total Disability)

Monthly Benefit for Accident for life..... **$300.00**

Monthly Benefit for Sickness for 12 months..... **$300.00**

And then $150 per month thereafter
FOR LIFE
Confinement Not Required

Total Monthly Benefit in Hospital for 3 months..... **$600.00**
(Including Disability Benefit Above)

SPECIFIED TRAVEL ACCIDENTS

Monthly Benefit FOR LIFE **$600.00**

Total Monthly Benefit in Hospital for 3 months..... **$900.00**
(Including Disability Benefit Above)

ORDINARY ACCIDENTS

Loss of both hands, feet, eyes; one hand and one foot; either hand or foot and one eye, monthly benefit FOR LIFE **$300.00**

Loss of either hand or foot monthly benefit for 20 months.... **$300.00**

Loss of sight of one eye monthly benefit for 10 months..... **$300.00**

Loss of Life..... **$5,000.00**
(and in addition, the monthly and hospital benefit for the period between date of accident and date of death)

SPECIFIED TRAVEL ACCIDENTS

All Ordinary Accident Loss of Limb, Sight and Life benefits above will be doubled if such accident occurs while riding as a passenger on any railway or street railway passenger car or bus.

House Confinement Not Required to Receive Full Benefits

WAIVES PREMIUM DURING TOTAL DISABILITY CONTINUING FOR MORE THAN 90 DAYS
PROFESSIONAL INCOME POLICY WITH OUTSTANDING FEATURES

★ Pays Monthly Benefits from 1st day of medical attention to life
★ Pays Benefits for Both sickness and accident
★ Pays Lifetime Benefits for Time or Specific Losses
★ Pays Regular Benefits for Commercial Air Travel
★ Pays Benefits for Non-Disabling Injuries
★ 24-hour Coverage—On or Off the Job
★ Special Renewal Agreement, no Terminating Age
★ 33 Years of Service to the Public
★ Incontestable Clause
★ The Silent Partner
★ No Increase in Premium
★ No Terminating Age
★ Grace Period 10 Days
★ Non-Pro-Rating
★ Non-Assessable
★ Non-Aggregate

FULL INFORMATION WILL BE PROMPTLY FORWARDED

UNITED INSURANCE COMPANY

LIFETIME PROFESSIONAL INCOME DEPARTMENT
387 New Brotherhood Building, Kansas City, Kansas

Name_____

Address_____

Age_____

to vitamin D intoxication, and other reports of intoxication, far from complete, have appeared in the literature.

The exact incidence of intoxication is unknown. It varies with individual susceptibility, and probably with high dietary calcium and pre-existing renal disease. At least two commonly sold multiple vitamin preparations contain 50,000 units of vitamin D per capsule. Probably, however, most cases of intoxication occur in patients who are receiving large doses in treatment of a particular disease.

The complete syndrome consists of the following:

1. General: weakness, fatigue, weight loss.
2. Gastrointestinal: nausea, vomiting, diarrhea, abdominal cramps.
3. Neurological: headache, paresthesias, vertigo.
4. Psychiatric: depression, mild psychosis, stupor.
5. Hematological: normocytic, normochromic anemia.
6. Urological: albumin, red cells, casts in urine with decrease in concentrating ability; frequency and nocturia.
7. Ophthalmological: band keratitis.
8. Chemical: elevated serum calcium and phosphorus with normal or slightly elevated alkaline phosphatase. Progressive nitrogen retention.
9. Roentgenological: diffuse demineralization of bones in advanced cases; periarticular soft tissue calcifications.
10. Pathological: scattered calcium depositions in kidney, blood vessels, periarticular soft tissues, heart, stomach, lung, thyroid and pancreas.

The authors report seven cases in detail, illustrating various manifestations of the intoxication.

Differential diagnosis is rarely a problem, since the only diseases likely to be confused are primary and secondary hyperparathyroidism.

Prognosis is usually good, although some degree of irreversible renal damage may remain.

Hypervitaminosis D can probably be prevented if the following precautions are used during administration of large doses of vitamin D:

1. The patient should be cautioned about possible toxicity.
2. Routine urinalysis and hemoglobin determinations should be checked every two weeks.
3. Serum calcium determinations should be made monthly.
4. If symptoms appear, treatment should be stopped and further studies done.

Treatment of hypervitaminosis D consists of the following:

1. Cessation of vitamin D intake.
2. Strict low calcium diet.
3. Avoidance of undue exposure to sunlight.
4. Avoidance of alkali.
5. Maximum mobilization of the patient.
6. Sufficient fluid intake to insure daily urinary output of at least 2,000 cc.—*E.J.R.*

Hospital Statistics

American hospital service reached an all-time high last year, according to the annual report of the Council on Medical Education and Hospitals of the A.M.A. The 6,637 hospitals registered by the council admitted 18,237,118 patients last year, an average of one every 1.7 seconds. The previous high was in 1950 when the admittance rate was one patient every 1.8 seconds.

The registered hospitals had a capacity of 1,529,988 beds, with 42 per cent in general hospitals, 48 per cent in mental institutions, 6 per cent in tuberculosis hospitals and 5 per cent in all others. Governmental bodies, federal, state and local, controlled 3 of every 10 hospitals and provided 7 of every 10 beds.

In general hospitals as a whole, the average stay per patient was 10.1, a rate which has been fairly constant for the last three years. The average stay in 1945 was 15.9 days.

The report showed 216,047 graduate nurses employed by hospitals last year, exclusive of 31,807 on private duty assignments. Student nurses numbered 103,527.

BOOK REVIEWS

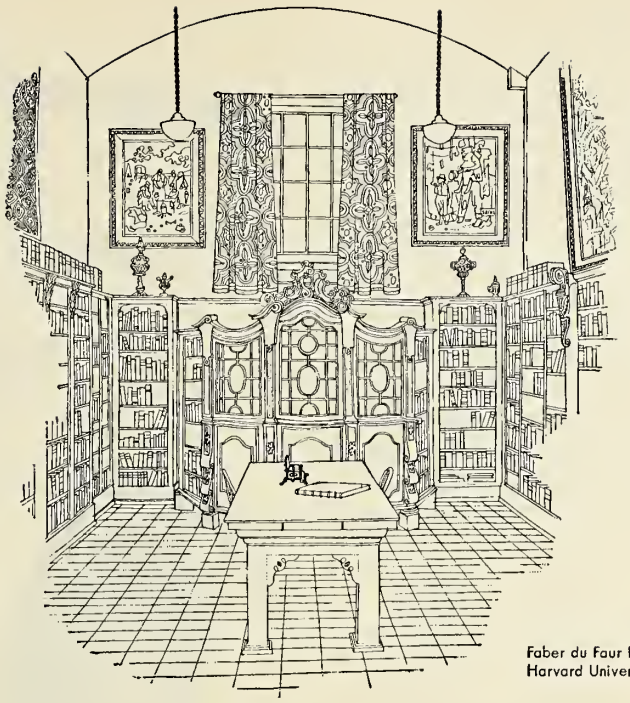
Cardiography in General Practice. By Abraham I. Schaffer. Published by Williams and Wilkins Company, Baltimore. 135 pages. Price $3.00.

This is a surprisingly adequate book. The reviewer's first thought on noting the title and small size of the book was that here was another superficial approach to the role of instrumentation in heart disease. However, upon closer review, it is apparent that the author has done a very competent job of presenting 12 lead electrocardiography, using the vector approach.

This book is quite readable. My only criticism is in the title. The book is actually devoted to electrocardiography with only a very few words about other forms of instrumentation. One small chapter is devoted to ballistocardiography.—*E.G.D.*

Deaths from tuberculosis have been reduced to about 1/10 of what they were a century ago; but they still cost the U.S.A. 1,000,000 years of future working life and $350,000,000 a year for medical care and related services.—*WHO Monograph Series No. 7, 1951.*

New aureomycin minimal dosage for adults —four 250 mg. capsules daily, with milk.



Faber du Faur Library, Harvard University

From among all antibiotics, Urologists often choose

AUREOMYCIN

Hydrochloride Crystalline

because Aureomycin concentration is much higher in the urine than in the blood, so that very satisfactory therapeutic urinary levels may be reached with moderate oral dosage.

Aureomycin appears in high concentration in the urine, and can be detected for as long as 55 hours after a single oral dose of 0.5 to 0.7 Gm.

Aureomycin serum levels are maintained for as long as 12 hours after oral administration, oral doses of 5 to 10 mg. per kilo at 6-hour intervals being adequate for this purpose.

Aureomycin has its activity greatly increased in an acid medium, rendering it highly useful in the normally acid urine.

Aureomycin has been reported to be useful in infections commonly seen by urologists, including:
Genitourinary infections caused by *E. coli*, *A. aerogenes*, *S. faecalis*, paracolon bacillus, staphylococcus, streptococcus, and enterococcus • Chronic or Resistant Urinary Infection* • Gonorrhea • Nonspecific Urethritis*

Throughout the world, as in the United States, aureomycin is recognized as a broad-spectrum antibiotic of established effectiveness.

Capsules: 50 mg.—Bottles of 25 and 100; 250 mg.—Bottles of 16 and 100. *Ophthalmic:* Vials of 25 mg. with dropper; solution prepared by adding 5 cc. of distilled water.

*When caused by aureomycin-susceptible organisms.

LEDERLE LABORATORIES DIVISION AMERICAN Cyanamid COMPANY 30 Rockefeller Plaza, New York 20, N.Y.

Research Grants to Kansans

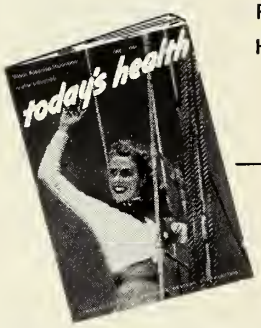
Four Kansans were named as recipients of research grants made recently by the Surgeon General of the Public Health Service, upon the recommendation of the national advisory councils. The grants are part of a total of $2,188,699 allocated to non-federal research and scientific institutions.

Dr. Stanley R. Friesen, of the University of Kansas Medical Center, is to receive $7,106 for a study of hemophilia in experimental blood transfusion reactions. Dr. Ann Pollak and Dr. Victor B. Buhler, also of the medical center, were allotted $5,624 for research on pathogenicity, cultural characteristics and antibiotic sensitivity of atypical acid-fast organisms. An amount of $2,150 was awarded to Cora M. Downs, Ph.D., University of Kansas, Lawrence, for work on mechanism of development and immunity in murine and epidemic typhus.

Medical Aspects of Civil Defense

A booklet reproducing a series of articles on the medical aspects of civil defense, prepared by the Council on National Emergency Medical Service of the A.M.A., was recently issued. Copies may be secured from the Council, 535 North Dearborn Street, Chicago 10, Illinois, at 25 cents for a single copy, 20 cents per copy for orders of 100 or more.

today's health a must!
for your reception room



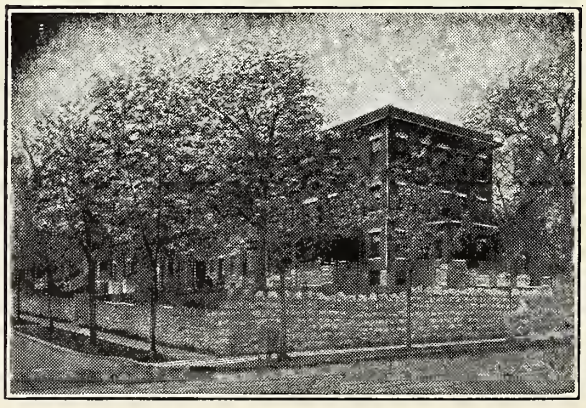
Physicians' Half-Price Rates

4 years	$4.00
3 years	3.25
1 year	1.50

AMERICAN MEDICAL ASSOCIATION
535 North Dearborn · Chicago 10, Illinois

THE MAJOR CLINIC ASSOCIATION
3100 EUCLID AVENUE KANSAS CITY, MISSOURI

A Well Equipped Institution for the Nervous and Mental Diseases and Alcohol Drug and Tobacco Addictions



Beautiful Location Large, Well Shaded Grounds Spacious Porches, All Modern Methods for Restoring Patients to a Normal Condition

Elderly People Accepted — Special Rates

HERMON S. MAJOR, M.D.
Medical Director

HERMON S. MAJOR, JR.
Business Manager

ACCIDENT • HOSPITAL • SICKNESS
INSURANCE
For Physicians, Surgeons, Dentists Exclusively



DISABILITY COSTS (Quarterly)

Adult	2.50	5.00	7.50	10.00
Child to age 19	1.50	3.00	4.50	6.00

$5,000 accidental death **Quarterly $8.00**
$25 weekly indemnity, accident and sickness

$10,000 accidental death **Quarterly $16.00**
$50 weekly indemnity, accident and sickness

$15,000 accidental death **Quarterly $24.00**
$75 weekly indemnity, accident and sickness

$20,000 accidental death **Quarterly $32.00**
$100 weekly indemnity, accident and sickness

COST HAS NEVER EXCEEDED AMOUNTS SHOWN

HOSPITAL BENEFITS

	Single	Double	Triple	Quadruple
60 days in Hospital	5.00 per day	10.00 per day	15.00 per day	20.00 per day
30 days of Nurse at Home	5.00 per day	10.00 per day	15.00 per day	20.00 per day
Laboratory Fees in Hospital	5.00	10.00	15.00	20.00
Operating Room in Hospital	10.00	20.00	30.00	40.00
Anesthetic in Hospital	10.00	20.00	30.00	40.00
X-Ray in Hospital	10.00	20.00	30.00	40.00
Medicines in Hospital	10.00	20.00	30.00	40.00
Ambulance to or from Hospital	10.00	20.00	30.00	40.00

$4,000,000.00 INVESTED ASSETS

PHYSICIANS CASUALTY ASSOCIATION
PHYSICIANS HEALTH ASSOCIATION

$18,700,000.00 PAID FOR CLAIMS

50 years under the same management

400 FIRST NATIONAL BANK BUILDING **OMAHA 2, NEBRASKA**

$200,000.00 deposited with State of Nebraska for protection of our members

It's Convenient to Buy Kanox
THERAPEUTIC OXYGEN AND ANESTHETIC GASES



Oxygen Therapy
Regulators and Equipment
Repair Service for
Regulators, Flowmeters
and Humidifiers

Nitrous Oxide
Ethylene
Carbon Dioxide
Helium
Oxygen
Cyclopropane

KANSAS OXYGEN, Inc.

Phone 6392 HUTCHINSON, KANSAS Box 551

One of the most significant developments in the total medical care picture during the past 20 years is the amazing spread of the prepayment hospital and medical care insurance program. At the time of the inception of the program it seemed to be the consensus that the saturation point was about 17 per cent. This gave the social planners ample support in their argument that the voluntary system would never work, but that the government would have to do it. After a brief period of 15 years we see a picture where over 80 million persons in this country have some protection against hospital costs. Whereas, there are not as many who also have medical care coverage, the figure is rapidly growing and is almost paralleling the curve of the former, taking into consideration the later and slower start made by the Blue Shield. We cannot relax in our efforts of selling the American people on the principle of doing the job for themselves on a private initiative basis, and shouldering the responsibility of taking care of their own sickness costs in the traditionally American manner.—*Address by Gunnar Gundersen, member of the Board of Trustees, A.M.A.*

Apoerythin is the name applied to a new protein factor by R. Eakin of the University of Texas. It is said to be effective when given orally in the treatment of pernicious anemia.

Supplement on Medical Pictures

The Committee on Medical Motion Pictures of the A.M.A. has completed the 1951 supplement to the second revised edition of the booklet, "Reviews of Medical Motion Pictures." The supplement contains 90 outlines of medical and health films reviewed in the Journal of the A.M.A. during the past calendar year. Each film has been indexed according to subject matter and is briefly described and evaluated.

County medical societies may secure copies of the supplement from the Committee, 535 North Dearborn Street, Chicago, Illinois.

The new antitubercular compound about which enthusiastic preliminary clinical reports have appeared is being offered by Schering Corporation to every state, county, city and semi-private tuberculosis hospital in the United States having a bed capacity of more than 100. A total of 3,000,000 tablets of Ditubin, brand of isonicotinic hydrazide, will be available for clinical investigation.

Schering has been doing extensive research on antitubercular compounds for several years. Since recent published medical reports have aroused intense public interest, the corporation is broadening clinical study of the drug to the widest limit. Each institution will receive enough of the product to treat 10 patients for a period of six months.

Everything for the Laboratory

Southwest Scientific Corporation

LABORATORY SUPPLIES AND EQUIPMENT

122 South St. Francis Street

Phone 2-0582 Wichita, Kansas

CLASSIFIED ADVERTISEMENTS

YOUNG DOCTOR WANTED to take over practice and equipment in town of 2,000. No competition. Eight miles from hospital. Write the Journal 8-52.

FOR SALE—Library of medical books, white enamel folding table (examining), medical instruments. Will sell reasonably. Write the Journal 9-52.

FOR SALE—Trial case, refraction cabinet, ultra violet and other lamps, compressor and suction apparatus, specialist cabinet, stools, chairs, tables and other items, fountain cuspidor, large selection of EENT instruments. Retiring. Write the Journal 10-52.

FOR SALE—Westinghouse 100 KV, 100 MA tilt table radiographic and fluoroscopic x-ray unit, like new, very good price. Must dispose of as soon as possible. Also have used direct recording electrocardiograph in excellent condition. Write the Journal 11-52.

FOR SALE—16-inch Castle electric sterilizer. Like new. Write the Journal 12-52.

Student Health Service in large midwest college desires x-ray technician. Experience in both laboratory diagnosis and x-ray desirable. Pay commensurate. Very desirable working conditions. Write the Journal 13-52.

Nationally advertised Surgical Supplies and Equipment have been placed at Topeka, Joplin, Kansas City and St. Joseph for your convenience by—

GOETZE NIEMER CO.

Management by Dr. W. F. Goetze, a member of the American Medical Association, assures intelligent servicing of your orders.



COSMETIC *HAY FEVER?*

Prescribe UNSCENTED AR-EX Cosmetics

When perfumes or scented cosmetics cause allergic reactions — prescribe UNSCENTED AR-EX COSMETICS. Clinically tested to meet your high standards. Smart, fashion-right for patient acceptance. All needed beauty aids. Send for free Formulary



AR-EX COSMETICS, INC., 1036 W. VAN BUREN ST., CHICAGO 7, ILL.

AR-EX

HYPO-ALLERGENIC

Cosmetics

Clinically tested on allergic patients for use by allergic patients

Cook County Graduate School of Medicine

ANNOUNCES CONTINUOUS COURSES

SURGERY—Intensive Course in Surgical Technic, Two Weeks, starting September 8, September 22, October 6
Surgical Technic, Surgical Anatomy & Clinical Surgery, Four Weeks, starting September 8, October 20
Surgical Anatomy & Clinical Surgery, Two Weeks, starting September 22, November 3
Surgery of Colon & Rectum, One Week, starting September 15
Gallbladder Surgery, Ten Hours, starting October 20
Basic Principles in General Surgery, Two Weeks, starting September 8
General Surgery, One Week, starting October 6
General Surgery, Two Weeks, starting October 6
Breast & Thyroid Surgery, One Week, starting October 6
Esophageal Surgery, One Week, starting October 13
Thoracic Surgery, One Week, starting October 20
Fractures & Traumatic Surgery, Two Weeks, starting October 6

GYNECOLOGY—Intensive Course, Two Weeks, starting September 8, October 20
Vaginal Approach to Pelvic Surgery, One Week, starting September 22, November 3

OBSTETRICS—Intensive Course, Two Weeks, starting September 29, November 3

MEDICINE—Electrocardiography & Heart Disease, Two Weeks, starting September 29
Intensive General Course, Two Weeks, starting October 13
Gastroscopy & Gastroenterology, Two Weeks, starting September 15, November 3

UROLOGY—Intensive Course, Two Weeks, starting September 8
Cystoscopy, Ten Days, starting every two weeks

DERMATOLOGY—Intensive Course, Two Weeks, starting October 13

TEACHING FACULTY—ATTENDING STAFF OF COOK COUNTY HOSPITAL
Address: Registrar, 707 So. Wood St., Chicago 12, Ill.

THE LATTIMORE-FINK LABORATORIES

Topeka El Dorado
Kansas

J. L. Lattimore, A.B., M.D., Pathologist
A. A. Fink, A.B., M.D., Pathologist
H. C. Ebendorf, M.T. Serologist
A. C. Keith, B.S., Chemist
L. W. Hull, A.B., Bacteriologist
Walter Norris, A.B., Chemist

Anatomical and Clinical Pathology

Containers Furnished Upon Request

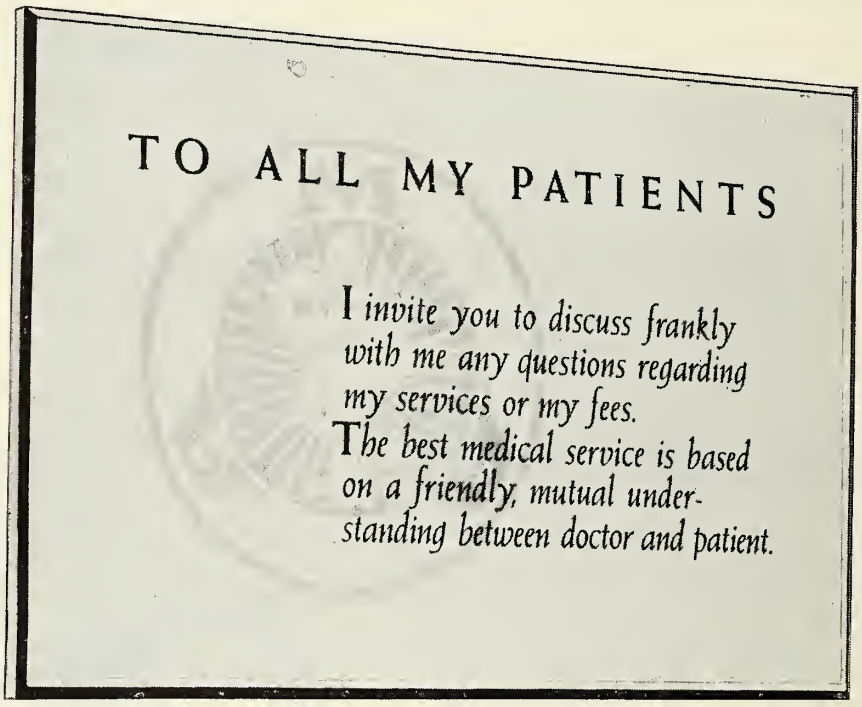
Refresh...add zest to the hour



announcing

A NEW PUBLIC RELATIONS AID

. . . to boost your PR rating



NEW OFFICE PLAQUE

- ✓ **dark brown lettering on buff**
- ✓ **harmonizes with any office decor**
- ✓ **measures 11½ by 7¾ inches**
- ✓ **for desk or wall**
- ✓ **laminated plastic finish**

As you know, a physician's best public relations is carried on right in his own office. Here the physician gets acquainted with his patients . . . gives them a chance to talk over problems . . . builds a feeling of mutual understanding between patient and doctor.

Your American Medical Association has designed an attractive new office plaque to be displayed prominently on an office desk or wall. This is a graphic invitation to patients to talk over professional services and fees. Patients like to ask questions, but often are hesitant to do so. This plaque will open the door to better relations with your patients. Order one today.

PRICE
$1
POSTPAID

Order Department
AMERICAN MEDICAL ASSOCIATION
535 North Dearborn Street
Chicago 10, Illinois

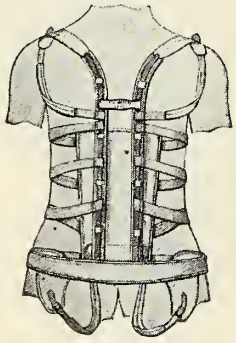
Medical and Surgical Supplies for Doctors of Medicine and Hospitals.

Munns Medical Supply Co.
512 Kansas Ave.
Topeka, Kansas

Deformity Appliances of Quality

Orthopedic and Surgical Appliances
Artificial Limbs

Trusses
Abdominal Supports
Elastic Hosiery
Foot Supports
Surgical Corsets



Taylor Back Brace
Made to Order
In Our Own Factory

P. W. HANICKE MFG. CO.
1009 McGee St. Victor 4750
KANSAS CITY, MO.

THE MEDICAL PROTECTIVE COMPANY
FORT WAYNE, INDIANA

PROFESSIONAL PROTECTION EXCLUSIVELY SINCE 1899

specialized service assures *"know-how"*

TOPEKA Office:
J. E. McCurdy, Rep.,
1035 Randolph Avenue,
Telephone 2-3027



THE BROWN SCHOOL

Four distinct units. Tiny Tots through the Teens. Ranch for older boys. Special attention given to educational and emotional difficulties. Speech, Music, Arts and Crafts. A staff of 12 teachers. Full time Psychologist. Under the daily supervision of a Certified Psychiatrist. Registered Nurses. Private swimming pool, fireproof building. View book. Approved by State Division of Special Education.

BERT P. BROWN, DIRECTOR
PAUL L. WHITE, M.D., F.A.P.A.,
MEDICAL DIRECTOR
P. O. Box 4008, Austin, Texas



More and more doctors are prescribing Daricraft Homogenized Evaporated Milk for babies . . . and for convalescent diets

Always uniform in quality, safe, sterilized, high in food value and minerals. Contains 400 U. S. P. units Vitamin D per pint of Daricraft. Easily digested.



PRODUCERS CREAMERY CO., SPRINGFIELD, MO.

Index to Advertisers

Abbott Laboratories ; IX
Ames Company, Inc. XVI
Ar-Ex Cosmetics, Inc. 408
Ayerst, McKenna and Harrison, Ltd. XIII
Brown School 411
Coca-Cola Company 409
Cook County Graduate School of Medicine 409
Duncan Laboratories X
Goetze Niemer Company 408
Hanicke, P. W., Manufacturing Company 411
Isle, W. E., Company 412
Kansas Oxygen, Inc. 407
Lattimore-Fink Laboratories 409
Lederle Laboratories 405
Lilly, Eli, and Company Facing XVIII
Major Clinic 406
Mead Johnson and Company Back Cover
Medical Protective Company 411
Merck and Company, Inc. VII
Munns Medical Supply Company, Inc. 411
Neurological Hospital Association XII
Parke, Davis and Company Inside front cover and III
Pfizer, Charles, and Company, Inc. .. XIV, XV and Inside back cover
Physicans Casualty Association 407
Producers Creamery Company 412
Ralph Sanitarium 399
Schering Corporation 401
Searle, G. D., and Company 397
Southwest Scientific Corporation 408
United Insurance Company 403
University of Kansas Medical Center XII
Upjohn Company XI
Wander Company VIII
Washington National Insurance Company XVII
Winthrop-Stearns, Inc. VI
Woodcroft Hospital XVII
Wyeth, Inc. V



THE JOURNAL
of the
KANSAS MEDICAL SOCIETY
Owned and Published by The Kansas Medical Society

Volume LIII SEPTEMBER, 1952 No. 9

Introduction to Trends in Nursing

The medical profession, the nursing profession, and the hospitals make up a team working for one purpose—to care for the sick and to promote preventive medicine. The three groups are so closely interrelated that changes which affect one group are of concern to all three. The care of sick people will be only as efficient as the cooperation of the three groups, and anything that weakens one will weaken the entire program.

Changes have been proposed within the nursing profession which are of concern to the members of the medical profession of Kansas, because they have been, are, and will be having their effects upon nursing education and nursing care of the patients. Two of these were thought to be of sufficient significance to the medical profession to devote this issue of the Journal to a presentation of both sides of the proposals. One is the resolution for a 40-hour, five-day work week for registered professional nurses to be presented to and voted upon by the Kansas State Nurses' Association at its meeting in Hays, October 21, 22 and 23. The other is the modern trend toward emphasis on larger, university training schools for nurses, with a corresponding de-emphasis on the training schools in the smaller hospitals which do not confer academic degrees in connection with certificates of eligibility for nursing.

In this issue of the Journal there is a presentation of various phases or implications of these two developments. The Journal regrets that the Kansas State Nurses' Association, although invited to contribute several articles from different sources, did not submit any material for this issue. Their reticence may be understood, however, in view of the differences of opinion existing within their own group. Other contributors were invited because of their peculiar experience with these problems, and in each case their experiences are directed toward explanation but not in the spirit of criticism.

It is hoped that the members of the Society will read them to sufficiently inform themselves of the facts in order that they may have a sound basis on which to form their own opinions as to what is best for the patient. For in the final analysis the nursing profession, as well as medicine, exists for no purpose other than to care for the patient.

A Survey of Nursing as Related to Kansas*

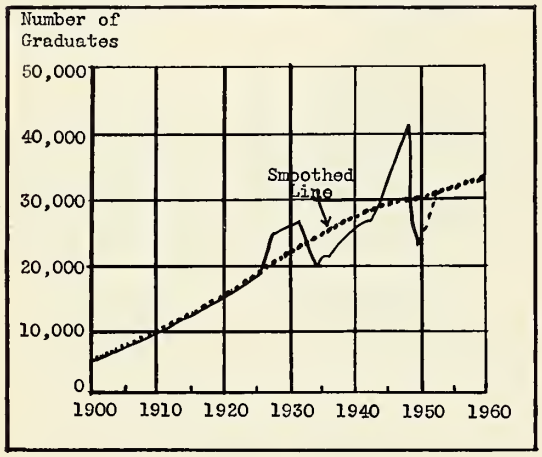
Thomas R. Hood, M.D., M.P.H., and Roberta E. Foote, R.N., M.P.H.†**

Topeka, Kansas

Everyone knows that there is a nursing shortage and that nursing service is not always of the high quality which we all desire. A brief study of some of the factors which have contributed to the problem and of the steps being taken or proposed to improve nursing service may be helpful. With this in mind the following information has been assembled from the nursing literature.

How Many Nurses Are There?

Number of Graduates of Nursing Schools, 1900-1949, with Estimates to 1960.[1]



The largest number of students ever to enter nursing schools was reported during World War II under the Cadet Nurse Corps program. There was a decided drop at the close of the war, but by 1951 the number of students had returned to the "normal" upward curve.

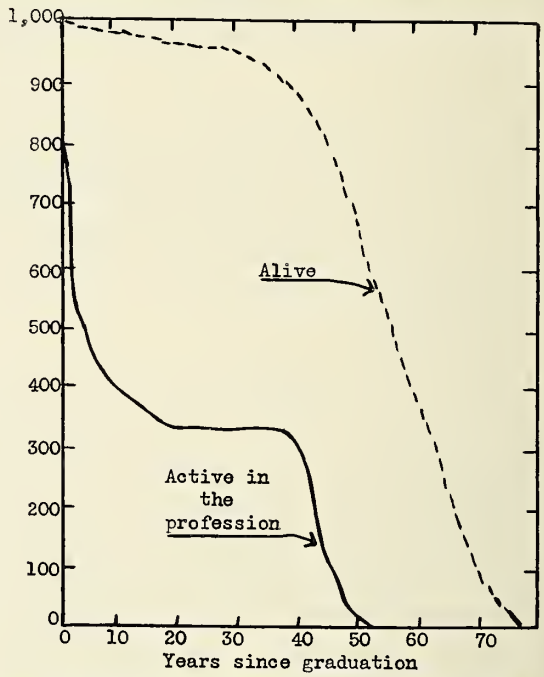
In spite of this rather steady increase, a study made in May, 1951, by the Health Resources Advisory Committee of the Office of Defense Mobilization states that we will face a deficit of 49,000 nurses by 1954. Civilian nursing services alone will require 379,500 nurses; and, if the Armed Forces reach a strength of five million men, an additional 25,000 nurses will be needed. Total requirement within three years is estimated to be 404,500 nurses.

One in every 10 high school graduates would need to enter nursing schools to meet these needs. Yet the nursing schools were about 20 per cent short of their quota of students in September, 1951.

It is sometimes said that nurses do not remain in the profession long enough to make their education worthwhile. However, the average working expectancy of a nurse is 15.3 years.[1] The following graph and table show an interesting pattern in regard to nursing careers:

Number of Nurses

Proportion of Professional Nurses Who Are Alive and Active in the Profession, by Years Since Graduation from Nursing School, 1949.[1]



Numbers of Graduates of Schools of Nursing in the United States Who Are Alive and Those Who Are Active in Nursing by Age, 1949.[1]

Age Group	Number of Graduates		
	Total	Living	Active in Nursing
Total	835,448	748,282	300,533
20-29 yrs.	237,041	233,042	118,105
30-39 yrs.	217,078	205,254	77,221
40-49 yrs.	183,028	166,763	57,331
50-59 yrs.	111,783	91,816	33,121
60 yrs. and over	86,518	51,407	10,758

Eight Kansas nurses who were charter members of Kansas State Nurses' Association in 1912 are still actively engaged in nursing and members of their professional organization after a period of 40 years.

While in 1927, 41 per cent of all nurses, active and inactive, were married, in 1950, 75 per cent

*This summary was prepared for members of the Kansas State Board of Health, at their request, by members of the staff of the Kansas State Board of Health. Approved by Kansas League of Nursing Education and Kansas State Board of Nurse Registration and Nursing Education.

**Executive Secretary, Kansas State Board of Health.
†Director of Public Health Nursing, Kansas State Board of Health.

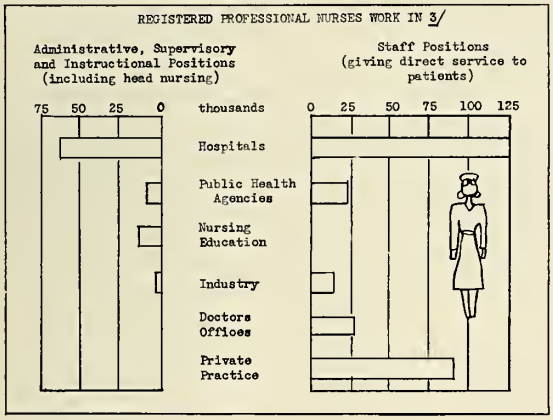
were married. The per cent of married active nurses in 1951—42 per cent—was higher than the per cent of all married nurses in 1927.

It has been found that with the birth of the first child, the large majority of wives withdraw from employment. As the children reach school age, many wives return to professional activity. As a result of these movements, a somewhat greater proportion of women between the ages of 35 and 55 are currently found in the postwar labor force than in the age groups 20-34 years.[1]

Where Are the Nurses?

Estimated Number and Per Cent of Active Professional Registered Nurses in the United States and Territories, by Field of Nursing, 1949.[2]

Field of Nursing	Number	Per Cent
Total	300,533	100.0
Hospital and other institution	141,882	47.2
School of nursing	7,839	2.6
Hospital and school of nursing	4,044	1.3
Public health	28,930	9.6
Public health and school of nursing	272	.1
Private duty	65,032	21.6
Industrial	13,113	4.4
Office of physicians	26,444	8.8
Other	1,371	.5
Unclassified	11,606	3.9



A study of this table and graph shows that 68.8 per cent of nurses are responsible for, or directly giving, nursing service to patients in hospitals and institutions if the private duty nurses are included.

Why Is There A Nursing Shortage?

1. The growth in demand for hospital care:

 Blue Cross and other such plans make this possible financially.
 Physicians urge it to conserve their time and because of treatments and tests requiring it.
 Modern homes are too small.
 Many homemakers are employed.

2. The complexity of medical nursing care:

 On a unit of a large Kansas hospital on July 11, 1952, there were 24 patients. The following special orders were carried out:

Hypodermic or intramuscular medication in 24 hours— seven different drugs	71 doses
Postoperative medications	50 doses
Irrigations	24 doses
Constant soaks	1 dose
Foot soaks	1 dose
RX of decubiti	5 doses

 Counting the time spent by all nurses, including the head nurse and a first year student, each patient received 1.3 hours of professional nursing in each eight-hour period. Two hours of non-professional time per patient made an average of 3.3 hours every eight hours.

3. The growth of nursing specialists such as industrial nursing and office nursing.

 In 1942 there were 5,512 industrial nurses. In 1951 there were 13,113 industrial nurses. Office nurses are listed separately for the first time in the *1951 Facts About Nursing;* 26,444 are reported—twice as many nurses as in the following categories: school of nursing; combined hospital and school of nursing.

4. The fact that many professions are now open to women. Some are more remunerative and require shorter periods of preparation. The WAVES, SPARS and WACS are examples of new careers for women.

5. The result of small classes in nursing schools following the Cadet Corps boom is being felt now.

6. The high withdrawal rate of students—an average of 30 per cent.

 The withdrawal rate among nursing students in degree programs is considerably less than in non-degree programs. This is true of the present senior class in the K. U. Department of Nursing.
 The withdrawal rate from good three-year schools is considerably less than from poorer schools.

7. Inefficient use of professional skills. Nurses are required to perform many non-nursing duties such as running errands and doing clerical work.

8. Military needs for nursing.

 Immediate unmet needs: [4]

Army 1,500 nurses
Navy 1,000 nurses
Air Force 1,000 nurses

The Kansas quota for 1951 was 34 nurses. Only seven were recruited.

9. The growth of international programs requiring well prepared nurses.

10. The growth in the number of hospital beds. In Kansas the number of beds has risen from 5,731 in 1947 to 8,263 in 1951—an increase of 43 per cent in hospital beds in four years.[5] Little effort was made to plan for staffing the extra beds.

11. The interstate movement of nurses which results in a steady loss for Kansas.

	Out-of-State Nurses Licensed in Kansas	Kansas Nurses Leaving to be Licensed Elsewhere	Annual Gain or Loss
1946 Facts About Nursing, p. 16	86	140	—54
1947 Facts About Nursing, p. 8	160	358	—198
1948 Facts About Nursing, p. 32	192	348	—156
1951 Facts About Nursing, p. 36	334	379	—45

In a survey of employment conditions for nurses in Kansas conducted for the Kansas State Nurses' Association in 1949, the chief causes for dissatisfaction were lack of: retirement and employment security, locker and rest room facilities, fair methods for awarding promotions and pay increases, opportunities for promotion, procedures for settling grievances, and education opportunities. The per cent of participating nurses who were dissatisfied with each of these aspects of their work ranged from 25 to nearly 60 per cent.[6]

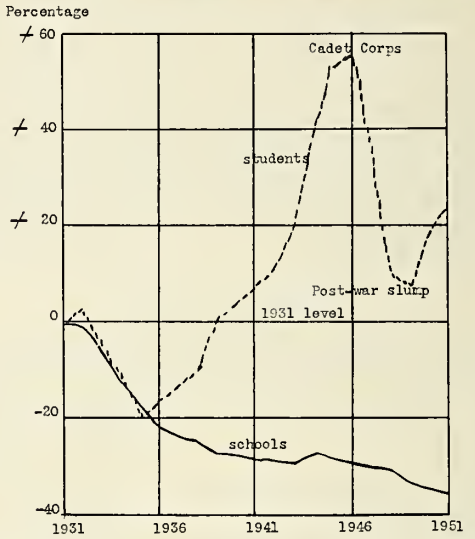
Is There A Relationship Between Trends in Nursing Education and the Shortage of Nurses?

The following graph indicates the increase in numbers of nursing students as the number of schools has gone down. This is true in Kansas as well as for the United States as a whole. Where four hospital nursing schools closed and concentrated their efforts on one three-year school located in Marymount College, the enrollment in the new school exceeds the highest student enrollment ever attained by the total for the four smaller schools operated separately.

The 102,509 students enrolled in basic schools of nursing (1951), represent the largest enrollment ever reported with the exception of the war years.

On January 1, 1951, 1,750 Kansans were enrolled

Percentage Change in Number of State-approved Schools of Nursing and in Number of Students Enrolled Each Year Since 1931.[7]



	1931	1936	1941	1946	1951
Schools	1,802	1,417	1,303	1,271	1,170
Students	82,989	69,589	87,588	128,828	102,509

in nursing schools. Of these, 20 per cent were attending schools in other states.

As of July 1, 1952, about 1,600 nursing students were enrolled in the nursing schools of the state. This compares favorably with 1948 when there were only 1,292 nursing students enrolled, and indicates that the Kansas pattern resembles the trend in other states.

The following table shows the slow growth of four- and five-year degree programs—less than one per cent per year; 90 per cent of the nursing schools participating in the temporary accreditation program this year were three-year hospital schools.

Student Nurses Enrolled in Diploma and Degree Programs on January 1, 1946-51.[8]

Year	Diploma Program (3 years)	Degree Program (4-5 years)	Per Cent in Degree Program
1951	93,325	9,184	9
1950	89,420	8,483	9
1949	82,182	6,635	7
1948	85,597	6,046	7
1947	101,425	5,475	5
1946	121,654	7,174	6

It is recommended by the American Association of Collegiate Schools of Nursing that no new collegiate school be started until a state or regional survey has been made to determine the need. Existing collegiate schools could take three times their present number of students.

The four-year school seems to be gaining in acceptance over the five-year program.

Nursing leaders such as Marian W. Sheahan, Director of Programs, National Committee for the

Improvement of Nursing Service agree, as do many Kansas nurses, that the good three-year school will be needed for many years—at least throughout the life time of the current nursing leaders.

The Kansas State Board of Nurse Registration and Nursing Education states that "The Board will continue its policy to help these schools evaluate their programs and to aid in strengthening and improving them."[9]

Can a case be made for the small nursing school? While it is not impossible for a small nursing school to prepare good nurses, the table below indicates how few such schools actually were rated either good or excellent in a nation-wide survey on Cadet Corps programs in 1945 as compared to larger schools.

Rating in relation to students admitted January 1, 1942-June 30, 1945, and remaining on June 30, 1945.[10]

Rating	Number and per cent of schools of each number of students enrolled											
	Total		0-49		50-99		100-199		200-299		300-999	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Excellent and good	147	13.1	6	3.1	21	5.1	65	16.4	27	32.1	28	66.7
Fair	646	57.4	80	41.5	236	57.7	267	67.3	50	59.5	13	31.0
Poor and very poor	332	29.5	107	55.4	152	37.2	65	16.4	7	8.3	1	2.4
Total	1,125	100.0	193	100.0	409	100.0	397	100.1	84	99.9	42	100.1

The criteria used in this study were as follows:[11]

1. Completeness of experience offered (number and kinds of clinical experience and courses included for all students, and the variety of patients—daily average patient census in each clinical field as well as total daily average).

2. Quality of patient care practiced—ratio of general staff and subsidiary workers to students and patients, approval of facilities by appropriate approval agencies (State Board of Nurse Examiners, American College of Surgeons, American Medical Association, confidential reports of visits to schools).

3. Number, qualifications, stability and work of school administrative and instructional staffs, including clinical instructors. Educational facilities, including laboratories (science, nutrition, and nursing arts), classrooms (school and hospital head nurse units), conference rooms, libraries.

4. Quality and amount of instruction in principles and their integration in practice.

5. Conditions of living and learning.

In view of the extreme shortage of qualified instructors for nursing schools, it is inefficient and uneconomical for one teacher to spend her time with only a few students. In addition, the clinical facilities in small hospitals do not offer sufficient variety to produce well rounded and well prepared nurses.

There are approved ways in which the smaller hospitals may participate in nursing education. They may become affiliating hospitals to a larger nursing school or a part of a central school. The Catholic schools have taken the lead in this kind of group planning. One method is to offer a short affiliation in rural nursing to students. This requires a qualified clinical instructor to guide the students during their rural experience. Some communities have made such students so welcome that they have returned to the small hospital for employment after graduation.

What About Nursing Education in Kansas as Related to the Country as a Whole?

The American Medical Association, the American Hospital Association and representatives from general education were asked to join with the nursing organizations in 1949 to form the National Committee for the Improvement of Nursing Service. The purpose of the committee was to study ways of improving the care of patients. The committee felt that some method of grading all nursing schools which wished to participate was necessary as a basis for determining next steps. This was called the School Data Survey. This survey was based on a questionnaire filled out by the school plus the latest annual data published by the American Hospital Association, American Medical Association and the U. S. Office of Education. Participation was voluntary, but 97 per cent of the schools took part. The School Data Survey differed from earlier nursing studies in that the rating of each school was published. For the rating of individual Kansas schools see *Schools of Nursing in the United States,* March, 1950, distributed by the Committee on Careers in Nursing. The table below will indicate how Kansas compared to the country as a whole.

Ranking of Kansas Nursing Schools Compared to U. S. Schools Participating in the School Data Survey.[12]

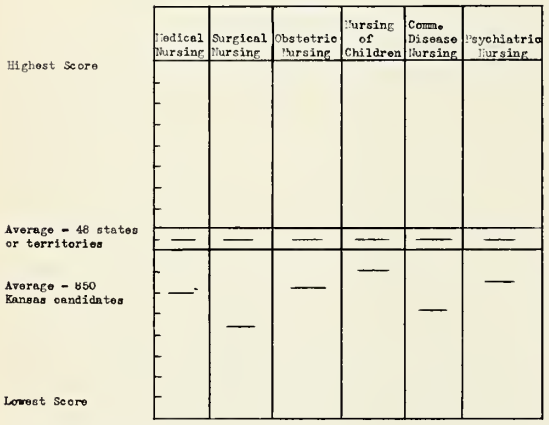
	Kansas Schools		All U. S. Nursing Schools	
	Number	Per Cent	Number	Per Cent
In Group I (upper 28%)	1	3+	304	25
In Group II (middle 49%)	19	65+	580	49
In Group III (lower 22%)	9	31+	263	22
Not reporting or new schools			37	4
Total	29	100	1,184	100

This survey showed some improvement in Kansas nursing schools as compared to a 1945 survey.

The publishing of the School Data Survey caused resentment among the personnel of schools rated poor, but resulted in more action than had ever taken place before. The committee promised that another survey would be made in about two years so that the schools could show the improvements made.

The following graph shows the rating of the 850 Kansas nursing school graduates who wrote state board examinations between September, 1949, and September, 1951, as compared with other states. All states use the tests prepared by the National League of Nursing Education.

Adapted From Master Standard Score Means for States on State Board Test Pool Examinations Series 949.[13]



Frequently Kansas nurses cannot register by reciprocity in other states nor matriculate for professional study because the grades acceptable in Kansas are too low, or their clinical experience inadequate. This creates a great deal of bitterness since these nurses entered nursing schools in good faith that they would receive an adequate education.

Although the daily patient average required for student clinical experience is about as low as it can be if Kansas nurses are to be accepted by reciprocity in other states, these standards have not been raised for at least four years. The daily average of obstetrical patients has been lowered to five patients because of early ambulation, but the required number of deliveries remains the same.

What About the National Accrediting Services?

Full Accreditation

Previous to 1949 there were four agencies accrediting nursing programs. These were the National League of Nursing Education, the Association of Collegiate Schools of Nursing, the National Organization for Public Health Nursing and the Catholic Hospital Association. In line with nursing trends toward unity, the four agencies voluntarily relinquished their accrediting functions in favor of the newly formed joint agency, the National Accrediting Service. Accreditation by this body is voluntary and full accreditation is paid for on a fee basis. *The agency has no connection with government and no jurisdiction over the state boards of nurse registration.* Although there are over 200 approved nursing schools in the country, Kansas has never had a nursing school which could be fully accredited.

What Is Temporary Accreditation?

The National Committee for the Improvement of Nursing Service asked the National Nursing Accrediting Service to undertake this project to fulfill the promise that another study would be made following the School Data Survey. Funds were secured from interested foundations. The project was known as "temporary accreditation" since it was realized that many good nursing schools could not qualify for full accreditation for several years. It was felt that all schools could be helped in this way to improve the quality of their schools, thus improving patient care.

The temporary accreditation combined a questionnaire completed by the school with a one-day accreditation visit. A nurse from within the region was chosen to make this visit so that midwestern schools were evaluated by midwestern nurses. Each school was evaluated in the light of its own stated objectives. Three-year schools were compared with other three-year schools and collegiate programs with other collegiate programs.

This study has been completed and each school received a profile of its own rating by August 1. The list of schools achieving temporary accreditation was published in the August issue of the American Journal of Nursing. (See Page 424)

Regional institutes are being set up, one held in Wichita on July 29, 30 and 31, to explain the rating and to help schools find ways to strengthen areas where they are weak and make plans for the future.

Kansas schools which did not qualify have received a letter from the Kansas Board of Nurse Registration and Nursing Education assuring them that their approval by the state board will not be jeopardized, and offering the help of the board toward temporary accreditation later.

How Can the Nurse Shortage Be Relieved?

A. By improving nursing education:

The World Health Organization's "Report of the Expert Committee on Nursing"[14] states that throughout the world it is "common experience that an elevation of the standards of admission increased the number of candidates for basic nursing programs." The report states further that in countries where medicine is highly developed and nursing is not, the health status of the people does not reflect

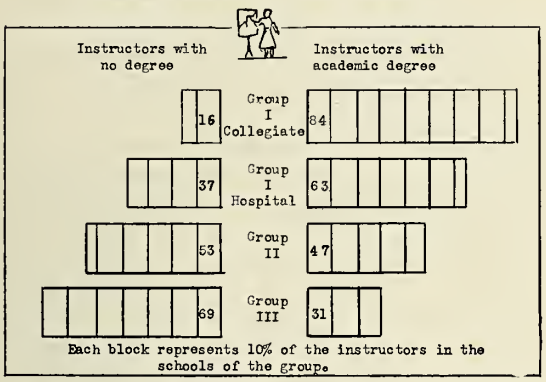
the advanced stage of medicine. Nursing is essential to the vitalization of the health program.

Areas for improvement include:

1. More understanding of students, more attention to their needs as young adolescents, better personnel policies for students.
2. More adequate financing of nursing education as a necessary community service.
3. Better prepared faculty for nursing schools. The Joint Commission for the Improvement of the Care of the Patient, which is made up of representatives of the American Medical Association, American Hospital Association, and the nursing organizations, met on March 3-4, 1952, in New York City and agreed on four points. The first point called attention to the need for well prepared nurses for faculty of schools, and for administrative and supervisory services.

The following graph shows the preparation of nurse instructors at the time of the School Data Survey in 1949.

Academic Preparation of Nurse Instructors.[15]



While directors of university schools of nursing need qualifications equal to those of other department heads, less than 10 per cent of all nurse educators hold masters degrees and only 55 per cent hold any academic degree. Since an academic degree is required for most high school positions, it is not unreasonable to hope that nursing schools should have faculty members at least as well prepared.

B. By continuing to develop good schools for practical nurses:
 1. The nursing organizations are engaged actively in promoting such schools.
 2. The Florence Cook Department of Practical Nursing, K. U. Department of Nursing, graduates its first class in August.
 3. There were 108 approved schools for practical nurses in the United States in 1951 with an enrollment of 4,325 students.

C. By better in-service preparation of auxiliary workers such as aides.

D. By directly improving nursing service:
 1. Studying the best use of the skills of each team member so that limited professional skills will be used where they will contribute most to the recovery of the patient. The American Nurses' Association is engaged in studies of this type, which already are leading to practical solutions.
 2. Increased use of the team approach.
 3. Courses and institutes in nursing service administration. Such courses have been conducted during the current year.

E. By making nursing in rural areas attractive through attention to the following:
 1. Proper personnel policies including salary, living conditions, and prestige.
 2. More scholarships for prospective local nursing students who could be requested to return to the community after completion of nursing school. This is already working to some extent.
 3. Encouraging inactive nurses to help out. This is only a stop-gap as married nurses who are bringing up families are not inactive.

F. By using some of the ideas in Dr. Franklin D. Murphy's rural health plan which have been so successful in bringing physicians to rural areas. These include:
 1. Provision of educational facilities to make excellent preparation possible.
 2. Making the rural community so attractive that the young graduate would wish to practice there.

Conclusion

The problem of adequate nursing care is very real and acute. The national nursing organizations are aware of the problems and are working earnestly with other groups to solve them. Kansas nurses have not gone so far as the nurses from many other states in activating inter-professional committees but many Kansas nurses are studying and working to improve nursing service and nursing education within the state. Nursing welcomes the constructive criticisms and suggestions of other groups. At the recent nursing convention in Atlantic City, several nursing organizations merged to form the new National League for Nursing in order that nurses. allied professions, interested laymen, students, and —later—qualified practical nurses might work together to bring to all the people the kind and amount of nursing service which they need.

APPENDIX I

Milestones in the Progress of Nursing Education

This material indicates that there has been no sudden change in nursing education trends. Present concern has grown out of the efforts of the past as well as the needs of the present.

1893—American Society of Superintendents of Training Schools for Nurses was formed.

1912—The above organization changed its name to the National League of Nursing Education.

1917—*Standard Curriculum for Schools of Nursing* published.

1923—Josephine Goldmark's Report—*Nursing and Nursing Education in the U. S.*

1927—*Curriculum for Schools of Nursing* published.

1928—*Nurses, Patients and Pocketbooks* by May Ayers Burgess published.

1926-1936—The Committee on the Grading of Nursing Schools conducted a ten-year study of nursing education.

1937—*The Curriculum Guide for Schools of Nursing* was published. It has never been revised since many of the nursing schools to this day have remained so far below the recommendation.

1937—The National League of Nursing Education began accrediting nursing schools which met its standards. No Kansas school has met the requirements for such accreditation.

The above studies pointed direction but did little to accelerate progress.

1945-1946—National Nursing Council invited Esther Lucille Brown, Ph. D., Director, Department of Studies in the Professions, Russell Sage Foundation to study nursing education.

The National Nursing Council was created in 1942 for the purpose of coordinating the war efforts of several national organizations. The constituent bodies were: the six national nursing organizations, American Red Cross Nursing Service, Council of Federal Nursing Services, International Council of Nurses, Division of Nursing of U. S. Public Health Service, American Hospital Association, National Association for Practical Nurse Education, American Medical Association, Nursing Unit of U. S. Children's Bureau.[16]

1948—Doctor Brown's report, *Nursing for the Future,* was published.

1949—The National Nursing Accrediting Service was organized to accredit all levels and types of nursing education.

19....—The National Committee for the Improvement of Nursing Service was organized.

19....—The School Data Survey was published.

1952—Temporary Accreditation.

Bibliography

1. Margaret D. West, Estimating the Future Supply of Professional Nurses, *American Journal of Nursing,* October, 1950, page 656.
2. American Nurses' Association, 1951 Facts About Nursing, page 13.
3. National Committee for the Improvement of Nursing Services News Letter, June, 1951.
4. Statements made at the Nurses Biennial Convention in Atlantic City, June 16 to 20.
5. Information from the Division of Hospital Facilities, Kansas State Board of Health.
6. Adapted from *Employment Conditions for Nurses in Kansas.*
7. Student Enrollment--1951, *American Journal of Nursing,* July, 1951, page 470.
8. American Nurses' Association, 1951 Facts About Nursing, page 41.
9. Statement authorized for this report by the Kansas Board of Nurse Registration and Nursing Education, July 18, 1952.
10. Vreeland, Some Qualitative and Quantitative Factors in Nurse Education, page 17.
11. Vreeland, Some Qualitative and Quantitative Factors in Nurse Education, pages 14 and 15.
12. Adapted from *Nursing Schools at the Mid-Century,* pages 7, 80 and 82.
13. Information obtained from the Kansas State Board of Nurse Registration and Nursing Education.
14. W. H. O., Third World Health Assembly, Report on Expert Committee on Nursing, Official World Health Organization 25 item 1.S.2., page 9.
15. *Nursing Schools at the Mid-Century,* page 46.
16. Brown, Nursing For the Future, page 8.

Freedom appeals to man's strength; socialism and communism appeal to man's weakness. Freedom teaches a man to stand independently on his own feet; the others teach him to lose himself in the protective herd. Freedom places its emphasis on man himself; the others lose man in their emphasis on mankind.—*Betty Knowles Hunt.*

Problems Relating to Nurse Education in Kansas

Carl C. Lamley*
Topeka, Kansas

For those of us who are not informed concerning the problems confronting nursing education, the nursing survey offers a very disquieting picture. However, I believe the publication of this document will cause many of us who have been resignedly accepting the nursing shortage to give more profound thought to this acute problem.

The fourth paragraph is enough to frighten the most stable individual. If we must recruit one out of every 10 high school graduates in order to meet our need in 1954, some terrific upheaval in our social structure is indicated. It is my understanding that most schools of nursing try to recruit their student from at least the upper half of the graduating class. This means, then, that we must recruit one out of every five high school graduates, and this does not include any allowance for physical and psychological inadequacies.

There are those who have proposed that we shorten the training period of graduate nurses, and others who would drastically revise the curricula. I think, however, we must consider the fact that most students now graduating from our nursing schools are between the ages of 20 and 21. Would a more immature girl with less training be able to fill the job? The survey supports the fact that we are today expecting a much higher degree of skill from the graduate nurse than was demanded only a few years ago. When we observe many of our highly skilled nurses performing tasks which involve the life of a patient, a three-year background of training seems to be the bare minimum.

According to the survey, hospitals are now utilizing approximately 50 per cent of the graduate nurses available in nursing education and service. It should be remembered, however, that these graduates, in addition to performing the highly skilled procedures required, are also directing the activities of approximately 271,000 auxiliary personnel in nursing service. Hospitals are expecting more technical skill from the graduate nurse, and at the same time are adding the burden of supervising numerous subsidiary workers. We are confronted with the problem of now making available to our graduate nurses additional training in ward management, work simplification, work assignment, hospital economics and, most important, human relations.

Of course, any appraisal that I would make of the survey would reflect the interest of hospitals. I would not argue with the reasons presented for the nursing shortage, but I would like to add two other contributing factors to the 11 enumerated in the survey: (1) The survey reports 28,930 graduate nurses in public health employment. I would suggest that this represents a substantial increase during the last 10 years. (2) Hospitals have been greatly retarded in supplementing the services of graduate nurses by the nurses themselves. As individuals, and in groups, they have resisted assignment of ward secretaries and auxiliary personnel to duties which they have traditionally performed.

Section 7 of the survey is devoted to an enumeration of things that might be done to relieve the nurse shortage. I agree in most part with the observations made in this section, but I would like to see a more comprehensive study made of the needs in Kansas and a definite program outlined for meeting these needs. For purposes of discussion, I would like to outline some of the needs that I believe to be of the greatest significance:

1. Recruiting. The survey reports that approximately 1,600 students were enrolled in Kansas, and if this enrollment represents only 85 per cent of the potentiality, we should certainly be recruiting the other 240 students that we could be training in our nursing schools. I would suggest the employment of a full-time person who could devote a reasonable amount of time in each high school in this state—presenting the opportunities in nursing and developing community scholarship programs. Most of us are expecting some miracle to produce graduate nurses, when our practical solution is to "beat the bushes," find the candidates, provide them with scholarship funds, and at the same time contract for their return to the community. The survey points out that approximately half of our graduate nurses are not actively engaged in nursing. Marriage seems to be the greatest hazard, so it might be prudent to provide two scholarships and hope that only one of the graduates would marry before the end of the contract.

2. Training Programs for Auxiliary Workers. A few days of orientation is not enough time in which to prepare an auxiliary worker for floor duties. All hospitals should establish a definite program of training for auxiliary personnel. Generally the nurses assigned to the floors do not have the time to train their personnel in the basic care procedures. As a result, the auxiliary worker is not fully utilized and,

*Executive Director, Stormont-Vail Hospitals, Topeka, Kansas.

in many instances, becomes discouraged and seeks more satisfying employment. We might also add that the continued burden of trying to teach auxiliary workers while caring for acutely ill patients may discourage the graduate nurse and cause her to seek other employment.

3. Utilization of Graduate Nurses. I am convinced that hospitals are not the only employers of nurses who are not fully utilizing their skills. Certainly all employers of graduate nurses should analyze the jobs to be performed and assign graduate nurses only to those positions that require graduate nursing skills and knowledge.

4. Practical Nurses. One gains the impression from the survey that it will be a great many years before a large number of schools for practical nurses will be established. It is difficult to interest young students in the practical nursing field because the potentialities of the practical nurse are not sufficiently attractive. Certainly we should encourage students who are not able to qualify for diploma and degree programs to enter the practical nursing schools. However, I believe that our greatest source of practical nurses is the group of older persons who have an interest in nursing and are willing to train for one year in order to gain a license. Financial subsidies certainly would be a considerable boost to practical nurse education.

5. Training of Instructors. There are few schools in Kansas that can boast of an adequate staff of well-trained instructors. University extension courses should be developed and made available state-wide. This would give the present instructors and supervisors an opportunity to improve their job qualifications.

A more equitable method of adjudging the collegiate qualifications of a graduate nurse should be established. The survey points out that the educational qualifications of our instructors are not as high as those required for high school and university instructors. The University of Chicago recognizes that practical skills, associations, reading, and "just plain living" develop in each of us some knowledge of practically every area of academic training. Consequently, they have developed a battery of tests, the results of which they accept as a measurement of the student's knowledge in a particular academic subject. Nurses graduating from a three-year diploma program are generally granted 30 semester hours of credit toward a degree. It is my opinion that the three-year graduate who has practiced her profession for a number of years has had the opportunity to develop a considerable amount of knowledge in most of the academic fields. Why, then, can't our universities follow the University of Chicago's pattern of testing our graduate nurses and granting them credit which is commensurate with their knowledge? I believe this would considerably shorten the B.S. degree requirements for a well-qualified nurse. Such a program of recognition would greatly encourage our nurses to enroll in the universities and obtain their degrees. It should be recognized that a degree does not make an instructor, but this type of opportunity would make it possible for hospitals to hand-pick experienced nurses who had demonstrated not only the qualifications for instruction, but a definite interest in pursuing their profession.

6. Financing. The cost of financing nursing education in our hospitals is becoming a considerable burden for the patient. Many individuals and groups have opposed federal aid to nursing education. There is some justification for our fear of federal domination; however, our school systems are accepting federal aid with seemingly satisfactory results. Hospital costs are continuing to rise, and some program must be developed which will relieve the hospital patient of the responsibility for providing financial aid for what should be recognized as a community project. Hospitals must establish in-service training programs and staff these programs with capable instructors. Hospitals must assist graduate nurses, either directly or indirectly, in obtaining advanced training. If we are to do this, then it seems logical that we should be relieved of the financial burden of providing the basic education needed for the graduate nurse to enter any specialized field.

I believe it is possible for Kansas to solve its nursing problem. Certainly there is disagreement as to what should be done first and how it should be done. The responsibilities of nursing in the future will far exceed the responsibilities it is assuming today. With every advancement in medicine a new demand is placed on nursing. We must give profound thought to the establishment of ways and means of equipping the graduate nurse for the challenge that lies before her.

> It must be obvious that liberty necessarily means freedom to choose foolishly as well as wisely; . . . freedom to enjoy the rewards of good judgment, and freedom to suffer the penalties of bad judgment.—*Ben Moreell.*

The Nursing Problem in Small Hospitals

F. E. Wrightman, M.D.
Sabetha, Kansas

Nursing has become a paramount problem in the smaller hospitals, and is a matter of concern to the people living in communities served by small hospitals.

Until several months ago the smaller hospitals, meeting the requirements of the nursing league, were able to maintain small nursing schools that provided a well educated bedside nursing staff. Nurses graduating from these schools were trained by competent personnel and performed an excellent service, first and foremost to the patient, also to the doctors, to the hospital, and to the community as a whole.

Today, what has happened? Our small nursing schools which have performed a superb service to the community in the care of the sick have lost their accreditation, with an immediate depletion of nursing personnel.

It is not my intent to suggest that higher education be neglected, or that those who care to avail themselves of opportunities for more education be denied that privilege. I suggest only that many young ladies who are living in smaller communities and who are qualified to study nursing and to fill the needs of those communities after their training is completed, should be permitted to remain in the locality in which they live to take their training. The number of teaching institutions now accredited is small in relation to the number of nurses now needed in the state of Kansas.

The National League for Nursing has lost sight of the smaller communities in which doctors and hospitals have been building up superb services for the sick and for public health for many years.

How can the needs of the rural community be governed in any way by the needs of urban communities? Should the patient, the doctor, the hospital, as well as many prospective nurses, be penalized because they live in small communities? Are not those individuals in small communities entitled to good and efficient health services?

It would seem logical that some way or means could be found whereby, if necessary, two standards could be set up, with one standard permitting smaller hospitals to carry on as before, allowing prospective trainees to choose the type of training they prefer. The nurse with ambition to achieve a position of responsibility in a teaching institution will undoubtedly sense the need for considerable academic education. It will readily be recognized that many positions within the field of nursing require specialized knowledge and skill. The smaller hospital operating primarily for the care of the sick and not in any considerable measure serving as a teaching institution is probably best served by a nurse educated in the principles of bedside nursing. She recognizes serious illness; she understands emergency treatment for shock; she administers to the daily needs of the patient.

The prospective student nurse may have a reasonably well developed preference at the time she enters a school of nursing. She should be permitted her preference and enroll in the school offering the course she desires. A program of this type would permit the smaller hospitals to continue recruiting student nurses whose preference is patient care. The girl who prefers public health nursing, teaching, or supervisory responsibilities would be advised to select a nursing school of the other type.

We do not presume to dictate how this might be accomplished or by what names the two categories of nurses may be distinguished, but it appears that a wide spread between the groups would have an unfortunate result. It seems logical that the nurse trained for bedside duty who subsequently wished to equip herself for supervisory work might accomplish this with some additional education.

At any rate, if a program along these lines could be instituted, it would materially aid in the solution of the current dilemma of small hospitals. This actually goes beyond a monetary consideration since the highly skilled nurse with considerable knowledge in science and theory would find little inducement in a small hospital. By the same token, there is the girl who prefers to live in a small town and yet wishes to perform nursing services. She should be provided this opportunity which, while serving her interest, would at the same time materially relieve the problem currently confronting such communities.

May I suggest that the above plan be reviewed and that the rules and regulations governing schools of nursing be studied in cooperation with the various distinct areas, or with committees representing both the state medical society and the state nurses' association, so that the problems of each state be understood with plans made accordingly.

Why lose sight of the patient and make the sick pay for the unrealistic thinking of a small group who seem to put advanced education before the needs of actual bedside nursing care?

Kansas Schools of Nursing

The following list of approved schools of nursing is taken from an article entitled "Temporary Accreditation" which appear on Page 999 of the August, 1952, *American Journal for Nursing.*

SCHOOLS APPROVED FOR TEMPORARY ACCREDITATION BY THE NATIONAL NURSING ACCREDITING SERVICE

School of Nursing	*Location*	*Director*
Bethel Deaconess Hospital	Newton	Sr. Hilda C. Mueller
Halstead Hospital	Halstead	Sr. M. Carmel Claffey
Marymount School of Nursing	Salina	Sr. M. Theophane Umscheid
Mercy School of Nursing	Fort Scott	Sr. M. Helen Dougherty
Providence Hospital	Kansas City	Sr. Zita Marie Cotter
St. Anthony Hospital	Hays	Sr. M. Digna Desch
St. Francis Hospital	Wichita	Sr. M. Eulalia Stadlmann
St. Margaret's Hospital	Kansas City	Sr. M. Rose Wangler
St. Rose Hospital	Great Bend	Sr. M. Miriam Schremmer
Stormont-Vail Hospitals	Topeka	Avis Van Lew
Department of Nursing, University of Kansas School of Medicine	Kansas City	E. Jean M. Hill
Wesley Hospital	Wichita	Ilse C. Steg
Wichita-St. Joseph Hospitals	Wichita	Sr. M. Valeria Klenke

SCHOOLS NOT APPROVED FOR TEMPORARY ACCREDITATION BY THE NATIONAL NURSING ACCREDITING SERVICE

School of Nursing	*Location*	*Director*
Asbury Hospital	Salina	Amy Adams
Bethany Hospital	Kansas City	Edna G. Elmore
Grace Hospital	Hutchinson	Dorothy White (Acting)
St. Elizabeth's Hospital	Hutchinson	Sr. M. Vincent Hagan (Assistant to Sr. M. Helen)
Mount Carmel Hospital	Pittsburg	Sr. M. Frederica Besser
Newman Hospital	Emporia	Mrs. Frances C. Stout
St. Anthony Hospital	Dodge City	Sr. M. Virgil McFarland
St. Catherine's Hospital	Garden City	Sr. M. Alfonsa Schreiner
St. Francis Hospital	Topeka	Sr. Ann Dolores Muckenthaler
Susan B. Allen Memorial Hospital	El Dorado	Eula Ashbrook (Acting)
William Newton Memorial Hospital	Winfield	Gladys Harmon

CHARACTERISTICS OF POORER SCHOOLS

1. Very few full-time faculty members.
2. Unstable faculty.
3. High work load for faculty and students.
4. High evening and night duty for students.
5. Little or no planned clinical or ward instruction.
6. Low service hours carried by graduate staff nurses or non-professional workers, or both.
7. High withdrawal rates.
8. Low daily average patients in one or more clinical areas.
9. Low scores on state board examinations.

Resolution on a 40-Hour Week for Registered Professional Nurses

American Nurses' Association

Editor's Note. The following resolution was passed by the American Nurses' Association at its biennial convention held in Atlantic City in June, 1952. In the resolution is the suggestion that the principle outlined within the resolution be ratified as early as possible by each of the state nurses' associations. The Kansas State Nurses' Association announces that the resolution will be introduced at a meeting in October, to be held at Hays. The association has widely distributed this resolution throughout the hospitals of Kansas, and it has also been given to the Kansas Medical Society for consideration of physicians.

WHEREAS, The 40-hour week is a highly effective economic and social inducement for employed nurses to remain in their present positions, for inactive nurses to return to duty, and for prospective students of nursing to enter the profession; and

WHEREAS, Nurses throughout the country have clearly expressed their desire for the 40-hour week, as ordered by their delegates in the official pronouncements of the American Nurses' Association, and as evidenced by the employment standards promulgated through state nurses' associations; and

WHEREAS, The 40-hour week is accepted as the basic work week for the great majority of employed groups throughout the United States of America; and

WHEREAS, The experience of institutions and agencies employing registered professional nurses has proved the 40-hour week to be a valid, feasible and effective method for meeting the problems of staffing, recruitment, and turnover; therefore be it

Resolved, That this House of Delegates of the American Nurses' Association calls on all employers of registered professional nurses to put into effect the 40-hour week as the basis of payment for registered professional nurses, without reduction in salary, and with the request that employers make every effort to explore all such policies and practices as will make possible the institution of the five-day, 40-hour week, with two consecutive days off, as the standard work week for registered professional nurses; and be it further

Resolved, That any work by registered professional nurses beyond the 40-hour week be compensated on the standard basis of time-and-one-half; and be it finally

Resolved, That the House of Delegates urges every nurse, through her local section, district nurses' association and state nurses' association, to work for immediate implementation of the 40-hour week as set forth in this resolution.

The Proposed 40-Hour Week for Professional Nurses Employed in Hospitals

Bruce W. Dickson, Jr.*

Kansas City, Kansas

The American Nurses' Association at its biennial meeting in Atlantic City proposed a resolution for a 40-hour, five-day week, time and a half for overtime, for registered professional nurses employed in hospitals. This resolution has been referred to the nurse association of each state. While this resolution prima facie is good and proposes a much desired shortening of the work week, it poses many other problems which must be viewed carefully in analyzing the relative merits of its adoption.

Hospitals for many years have been operated as non-profit organizations for the purpose of rendering the most economical service possible to the community which they serve; to this end hospital administrators, doctors, nurses and other categories of hospital personnel have given their support wholeheartedly. However, hospital costs over the last 10 years have tripled, and in some instances have increased as much as five times, due to the high cost of providing drugs, food, dressings and personnel services to the patient. It has been but a few years since graduate nurses were employed at $65 per month for 12-hour shifts of nursing care, and in some cases on a seven-day week basis. We realize this was a practice which had to be modified in caring for the increased number of acutely ill patients that we have in our hospitals today.

The ultimate consumers of hospital service, third party payers, Blue Cross and commercial insurance companies have been faced with the burden of meeting these increased costs of hospitalization.

The 40-hour week as proposed by the American Nurses' Association would, depending upon the size of the hospital, increase the nursing payroll expense a minimum of 10 per cent and in most instances as much as 20 per cent. This step alone would require patients in the state of Kansas to pay an additional 75 cents to $1.00 for each hospital day. However, it is false to assume that within the confines of any hospital it would be possible to have different personnel practices apply to different groups of employees. Although nursing represents 60 per cent of the total payroll expense in the average hospital, the additional 40 per cent must be considered at the same time. This reduced work week for all categories of personnel would increase the average daily cost to each patient $1.25 to $1.75.

There are many ramifications of the 40-hour week with reference to the position that any hospital has to its own local community. For example, it would be frivilous to assume that the citizens of a community that were not on a 40-hour week would feel anything but exploitation if personnel in their hospital were receiving more benefits than they as individuals were receiving; yet, they as consumers would be forced to absorb the expense of these additional benefits that they themselves did not have. This points up one of the major alternatives of the all-inclusive resolution as proposed by the American Nurses' Association, namely, that each community is in a better position to determine its ability to provide a 40-hour week for its nurses and other employees on an individual basis rather than by any blanket type policy such as this resolution proposes.

The cost of supporting such a program, though supported in part by increased costs of nursing care in hospitals, will also be felt by the participating nurses. This thought must not be overlooked. In similar instances in industry where collective bargaining has been inaugurated, purported financial gain has been all but completely absorbed in the cost of administering the program.

The Kansas Hospital Association is aware of certain inequities and of some dissatisfaction among certain groups of nurses in the state. Currently five pilot studies are being conducted in hospitals ranging in size from 25 beds to 460 beds in diverse geographical locations. From the preliminary reports of these conferences it becomes apparent that administration, nursing supervisors, and general duty nurses can gain a great deal by sitting down and mutually discussing their differences and their problems. From these discussions it has been learned that some general duty nurses feel that one of the most critical areas in personnel relations in hospitals is their lack of recognition and professional status. To this end, it is our belief that more can be gained by personnel conferences within any community than by the adoption of the resolution for a 40-hour week and collective bargaining imposed by an agent unfamiliar with local problems.

The present demand for additional well-trained graduate nurses is probably our most acute problem. The 40-hour week resolution refers to this shortage but does not pose any real solution, as hospitals are currently employing nurses on an hourly and daily

*Administrator, Bethany Hospital, Kansas City, Kansas, and president of the Kansas Hospital Association.

work schedule to meet their conveniences. Our need is to attract more students to become educated in nursing and to attract more graduates from other states to carry on the professional work for which they are trained. Again, it is our belief that the causes of nurse shortage in Kansas can better be dealt with in local communities in a program such as the pilot studies in personnel relations.

Though not a direct part of the resolution as proposed by the American Nurses' Association, nurses should not lose sight of the contributions currently being made to further the education and earning power of nurses. A little known fact was recently uncovered as a result of a study of the cost of operating a school of nursing in a Kansas hospital. This study revealed that the operation of a school of nursing, which as late as a year ago was called exploitation of the student nurse, was in reality a deficit producing operation. In this study cognizance was taken of all income from students in tuition, fees, etc., and fair value for service rendered; these were then deducted from the cost of operating a school and providing faculty and facilities; this left a deficit of $1,000 per month or $12,000 per year. How was this deficit met? By patients in the hospital, at an increased rate of 30 cents per patient day! In other instances, deficits were met by outside benevolent and charitable givers who contributed for a necessary and worthy cause. It would be deplorable to have any such groups, either as patients or as benefactors, feel they were being exploited and hence withdraw their support.

The importance of the professional nurse in the service rendered to patients cannot be over emphasized. Let us not lose sight of the responsibilities vested in the nurse as a professional member of the healing team. For the nurse to assume the role of the laborer in this 40-hour week and collective bargaining principle, would destroy the very essence of prestige and respect they desire. Never has a nurse walked away from the operating table, the delivery room or the bedside of a critically ill patient because the whistle blew at the end of a shift of work. In dealing with human beings as the commodity produced, it is impossible to quit at the end of producing a certain number of units.

To make light of the proposed resolution or the needs and problems of the professional nurse would be amiss—to approve a blanket type proposal, too, would be amiss. Let us sit down and weigh the relative merits and responsibilities of serving the sick people in our own communities and individually come to a satisfactory solution. It can be said without hesitation that hospitals in the state of Kansas are in sympathy with, recognize the need for, and will support any steps proposed in, the elevation of the standards of nurses as individual members of a profession and would criticize the exploitation of any nurse by any employer. In return it is hoped that nurses will not force, collectively, any action that would react to the detriment of the nursing profession or that would impose standards that would place the hospital community in financial jeopardy.

Conditions of Education and Employment That Affect the Kansas Nurse

A Composite Opinion From Members of the Kansas Medical Society

It is not easy to approach subjects such as these with complete impartiality. However, this is a sincere attempt at objective evaluation in which the purpose is to report rather than to interpret a situation. When suggestions are offered they represent a search for solutions upon which all parties concerned might possibly agree.

The Nurse

The nurse is a professional person but dominated by and subservient to the physician. Her heroism has been overshadowed by the glamour of medicine, and where one Florence Nightingale catches a public's fancy there are tens of thousands of unheralded women serving without recognition but with equal pride and with equal devotion.

She performs a personal service and approaches this responsibility as an individual. She has the varied hopes and ambitions of the human race which, in addition to feeling pride in accomplishment, calls for recognition and prestige. This may be material, as in the case of income, or less tangible, as in the case of glory, but when lacking she cannot escape a feeling of resentment. An expression of resentment will result in action to improve her condition and is nothing more than human nature, apart from whatever work she may perform.

It appears especially appropriate to the nurse because she believes her services are of more importance than has been acknowledged. Unable to alter her condition alone, she quite naturally turns to organization, and with the strength of numbers hopes to establish for herself a position of respect and of importance comparable to what she believes proper. With a feeling of strength grows the urge

to act, and once a movement is set in motion it is not readily halted again. Under a surge of power, horizons can narrow, so wise and tolerant leadership is needed to preserve ideals. Once lost, they are only slowly regained, and for a time objectives become temporal. This is natural, but represents a hazard not to nursing alone but equally to all classes of persons attempting to improve their situation.

The above process need not be damaging at all, but the risk is present, and regarding the nursing profession this is seen as a threat that could inadvertently lead by means of a temporary gain to eventual loss. The nurse has considered such factors and some at least within the profession believe that direct action is the only effectual manner in which their situation can be improved. If that question is open for debate, it is at least a question with sincere exponents on both sides.

For generations the nurse has worked at the bedside through long, lonely hours. She has held firm to the ideals of her profession and today sees women in other fields of endeavor earning more, working less and without her heavy responsibilities. She views this as injustice, and since no person or group has stepped forward to champion her cause, she means to do so for herself. She wants to raise the standards of her profession to a place where she may command the respect her services deserve, and she plans to alter her working conditions.

Perhaps that is not a fair appraisal. It certainly is not the entire story because members of the nursing profession disagree heartily over what they hope to accomplish and how. It is, however, at least partially true because that philosophy has been frankly and openly discussed.

Nursing Education

The surest way to improve the standards of any profession is to raise its educational requirements. The nurse believes this part of her program to be modelled directly after the example of the medical profession. In about 1913 some 300 inadequate medical schools were closed, and the remaining standardized for uniformity. For a time this resulted in a reduction of students, but the condition gradually levelled until the supply approximates the demand.

The nurse finds much amiss with educational methods in Kansas. Schools of nursing are sanctioned in hospitals too small to provide adequate teaching material. Specialized instruction is lacking, and most resented of all is the belief that certain of these schools exploit the student for low cost labor. The hospital is more concerned over the work performed by the student than in her education. As a result, she serves an apprenticeship but receives very little formal education.

This situation, in the eyes of some, is the true reason for the difficulty experienced in recruiting students. The shortage of nurses is directly attributed to both the inadequacy of training and to unpleasant working conditions. Right or wrong, that represents the view of many nurses.

From a practical point of view, there is now a program that will close numerous nursing schools in Kansas, especially those in smaller hospitals. To state this situation as expressed by the nurses themselves is to banter with words, but nurses deny responsibility for the closing of any school. They merely set up standards and advise that graduates of schools not complying with these standards may not be eligible to take their board examinations. Requirements state, for example, the minimum number of patients that the hospital may have, and on that issue alone the small institution is eliminated.

How many hospital nursing schools will ultimately be closed is not known at present, but it will be considerable. At least one order of Catholic Sisters is making an interesting experiment that bears watching. Marymount College in Salina operates an accredited school of nursing, which replaces the schools that have been closed in some of the hospitals of this order, including that in Sabetha. Officials at Marymount report that the enrollment after only two years of operation is already greater than was ever experienced by the combined schools of their order that have been closed. So they say that higher educational standards will actually provide more nurses. Fewer schools will result in better education.

Only time can answer the question of whether such a plan will succeed. The small hospital, while lacking in formal education, has certainly produced nurses competent in the technique of bedside care. There is admittedly much in the field of nursing service which does not directly relate itself to patient care, but it is in this realm that the hospital, the physician, and the nurse work most closely together. More than one physician will question whether the scientifically educated nurse will thereby render a patient more understanding and conscientious and effective care than will the girl who simply follows the physician's direction without fully comprehending the purpose behind her efforts.

The medical profession is perhaps as aware of the value of education as is any other group that might readily be named. Certainly the physician should not stand opposed to an effort to raise the standards of the nursing profession. If the improved standard will render improved service, the physician will give his complete support to the program. If, on the other hand, this effort augments the nursing shortage or contributes to the mounting cost of illness,

he will question its wisdom. The problem may be stated more bluntly by saying that if this program is to benefit the nurse to the disadvantage of the patient, it would be as wrong as any comparable selfish effort promoted in behalf of the medical profession. Both exist for the sake of the patient and have no other excuse for being. Whatever renders the patient a better service is progress, and any effort to the contrary is unworthy of the ideals upon which these two professions are founded.

There is some criticism concerning the fact that the small town girl who trains in a large hospital will forever be lost to the small community. An experiment is being carried on in Kansas now which hopes to answer that objection. Mr. R. L. Jewell, administrator of the Sedan City Hospital at Sedan, Kansas, has a plan whereby girls in their senior high school year are selected as nurse aides. They work five evenings a week and receive only $25 a month for this service. Then, following graduation, they select the school of nursing of their choice and all tuition and other necessary expenses are paid for them from their uncollected earnings above the $25 of the year before. Besides this, they also receive $15 a month for the entire three years for spending money. Upon completion of their education, the Sedan City Hospital has first priority on their services for a period of one year at a salary of meals and $200 a month. If any nurse so educated prefers not to return to Sedan, she is obligated to pay the hospital $250 on its investment. Mr. Jewell estimates the cost of a nurse's education to be approximately $1,000 and that she will have earned within $250 of that sum. The advantage to the nurse is that a position is waiting for her and her education is covered without expense. The advantage to the hospital is that at least a portion of these students will return.

The 40-Hour Week

The second major problem concerns the resolution to regulate the working time of nurses to 40 hours in five successive days within a week. Here again much might be said, but little without prejudice. It is easier for the average physician to understand the effort to raise educational standards than it is for him to justify the passage of this resolution. He can accept the fact that many nurses have not been paid a fair rate for the services they have rendered. They have worked long hours and have consistently given more than they have received. But to a degree, at least, the same applies to the physician. He knew before he entered the practice of medicine that his working hours would be long, that heavy demands would be made upon his time, that he would perform many services for which he would never be paid. He knew before entering medical school that the life of a doctor is not a well regulated existence. In selecting medicine he accepted the hardships voluntarily, considering them of less than major consequence. Presumably, other vocational opportunities were open to him, some of which might have provided greater security, regular hours, and other desirable features. However, knowing all those things, he still selected medicine for whatever reasons he might have had, and in that knowledge he takes the difficulties, together with its advantages, without complaint.

It is perhaps not completely unfair to suggest that as an important segment of the healing professions the nurse is in a comparable position. She too accepted nursing because of opportunities, but together with those advantages its liabilities. To have her now declare that her service to mankind will be rendered within a 40-hour, five-day week is something short of the ideals upon which the nursing profession was founded. And quite possibly no argument can be presented to completely erase this thought from the mind of the physician.

The above comment is completely apart from the economics involved. The nurse should not be expected to work for unreasonable wages. The physician, to be fair, must be concerned over that factor and will render assistance toward improving the financial situation of nurses wherever conditions demand improvement. That can be accomplished without the formality of regulations which, even when self imposed, can only tend to reduce a profession from a high position to the status of a trade union. The benefits to be derived from the passage of this resolution, although material, might well bring with them further regulations and greater problems than any of those currently existing which they hope may be corrected.

CHANGE OF ADDRESS

Please notify the Kansas Medical Society of any changes in address.

Help keep the mailing list up to date.

PRESIDENT'S PAGE

Dear Doctor:

While in Chicago during the A.M.A. convention we had the unusual experience of being invited to the Press Club as the guest of Mr. Robert Hurleigh for lunch. Mr. Hurleigh broadcasts over the Mutual network and is also closely connected with "The World's Greatest Newspaper" (Chicago Tribune) in an editorial capacity. We were very much interested in his opinion on the trend of the times. We had been impressed with his forceful manner of speaking at Biloxi during the national Blue Shield-Blue Cross meeting, and were also impressed with the great fund of information he has at his finger tips.

We have always enjoyed a strict interpretation of the Constitution and the Bill of Rights and have subscribed to the idea that there is more genuine consistency of thought embodied in the Tribune than in any reading we have been privileged to see. Mr. Hurleigh then called to our attention the great amount of criticism which had been aimed at the Tribune, and went on to point out that a great many of the policies which had been most vehemently criticized had been vindicated and were now accepted as basic fundamental concepts. This, he thought, was due to the fact that they were consonant with clear thinking and also wholly consistent with basic fundamental concepts of government.

The medical profession can, we think, learn a valuable lesson as far as consistency and appreciation of basic fundamental concepts are concerned. We have one primary reason for existence. That is the health of the people of Kansas. We are, or should be, the guardians of the health of the people of Kansas. As such we must be actively interested in any matters pertaining to health which may be presented to our state legislature. That is our responsibility. In this regard as a basic concept our critical attitude toward the cultists must be entirely ethical and based on the knowledge that their lack of preparation to practice the healing arts is dangerous to the health of the people of Kansas and therefore our immediate concern. We believe that a legislative program founded upon such a policy is ethical, righteous, fair to all concerned, defensible and consonant with the principles of our democracy, and that it will add definitely to the dignity of the profession.



EDITORIAL COMMENT

Nursing—A Profession or a Trade?

Since the monumental work of Florence Nightingale nearly 100 years ago, the nursing profession has been one of the most honored professions in our society. The ideals have been high, and the inspiration for young women to enter training for nursing has been chiefly that of service to their fellow men. This service has been given unstintingly whenever and wherever the demand existed, to the great credit of the nursing profession. Nurses have been exalted to the position where it is no surprise to know of their going "beyond the call of duty" with the services which they alone were capable of giving. This has been true during "normal" times, and during times of "disaster," either civilian or military in nature.

During recent years there has been an increasing tendency to lighten the amount of work done by employed people and to decrease their working hours. At the same time the remuneration for services has increased, although in relation to the purchasing power of the payments received, it is often questionable whether there is any actual improvement in financial status.

In this trend, the nursing profession has shared somewhat, but without the coercion and regimentation that has been the feature of some employed groups. Nurses as a whole have realized the responsibilities which they voluntarily accepted when they received the right to do nursing as a means of livelihood, have kept the cost of their services within reason when compared to other services, and have given of their services in the amount that was necessary to accomplish their primary purposes—adequate treatment of sick patients.

There comes now, from the American Nurses' Association, the resolution calling for a "five-day, 40-hour week, with two consecutive days off" for all employed registered professional nurses. Included in the resolution is provision for change to this 40-hour week with no decrease in present remuneration, and payment on the basis of time and one-half for any overtime work.

Theer are unquestionably arguments in favor of such a change. There are also some arguments against it. One is the intangible effect on the attitude of nurses, and the inspiration to induce high class young women to study nursing and to do nursing after completion of their education. It is suggested by the resolution that the 40-hour week is an "inducement . . . for prospective students of nursing to enter the profession . . ." But the question may well be asked whether such an inducement will interest the same caliber of young women as those who have brought the profession to its present respected position; or will it attract those whose chief interest is in a remunerative job that will require a minimum of effort and time—the clock-watching type of employee? If this type comes to be dominant in the nursing group, it will no longer be a profession devoted to service and giving freely of its abilities for the alleviation of illnesses of mankind, but will become a group interested primarily in the pay check and the end of the work day.

If the members of the medical profession attempted to limit their work to 40 hours per week, they would certainly be severely criticized, and justly so. Are the medical and nursing professions going to be separated as members of a closely united team working for a common principle? With changes such as these which are here proposed, is nursing making a change from a revered profession to that of a trade? We hope not. We hope that there is still a pride of purpose and pride in achievement that surpasses the immediate lure of shorter hours of work.

The Nurse's Dilemma

Elsewhere in this Journal is recorded a statement that nine per cent of the current graduate nurses have academic degrees. Since they generally fill teaching, supervisory or public health assignments, that proportion appears about right in relation to the total. Should educational requirements be raised to increase that percentage, the shortage of nurses for bedside care will become greater than at present. Couple with this situation the reduction of students because numerous schools of nursing are being closed, and a currently difficult condition assumes the proportions of disaster.

Bedside care of sick persons is essential, so hospitals and physicians will have no choice should the current resources be eliminated, but to obtain such service from outside the nursing profession. The prospect is not particularly inviting since nursing care should be provided by trained personnel—professional persons of the type that were educated in schools that today are considered inadequate.

The dilemma rests, therefore, in the lap of the nursing profession. The doctor is admittedly concerned, but awaits the decision by the nurse as to whether she or some other group will perform nursing services for sick people. Should she prefer the glamour of teaching, the problem of shortages will have been solved since teaching requirements will be impressively reduced. Should she accept the principle that patient care is nursing srevice, then she must further assume some of the responsibility for

its lack. She must turn one way or the other, and neither course appears carpeted with roses.

The physician and nurse work as a team. They serve where they are needed and for whatever hours such care is required. They each possess a devotion to their profession that transcends interest in a time-clock, and count service as a considerable reward for their effort. This is not to infer that economics and educational standards are of no concern. Of course they are important. The first appears as a factor in personal survival, but the second is valid only as it relates to the effectiveness of the service that may be rendered the patient. In the care of the sick there can be no other reason for this problem to arise. This, then, is the primary point of difference between the doctor and the nurse in the current conflict. She believes her educational standards should be elevated, while he generally holds to the opinion that the small hospital can offer satisfactory training in patient care.

There is an honest doubt as to which view is correct, but whatever the outcome there can be no compromise on service. From at least one point of view it looks like this: if bedside patient care is an acceptable service, then nurse education should be designed to prepare the student to perform such duties in an efficient manner. The physician who directs the care of his patient is in a position to judge the quality of such service. Higher education should most certainly be available for the student who prefers supervisory or teaching positions, but the largest portion of each graduate class is needed for patient care.

However, the problem is not that simple. The nurse has had cause for complaint about educational practices. This situation should and can be improved. Hospital authorities and physicians must be willing to aid in correcting such defects. Should the nursing profession care to make this a cooperative venture, medicine will most certainly give enthusiastic assistance.

The decision at this point rests with the nurse. It is hoped that her leadership will not direct her into a regrettable course. Such word of caution is not entirely without purpose, because her national influence has not always coincided with the philosophy of the independent, free thinking Kansas young woman any more than have medical problems of the populous coastal areas been solved as physicians in Kansas would solve them.

An example, even if not directly related to the subject at hand, is the resolution passed by the American Nurses' Association in 1950 and again in 1952 on socialized medicine. This was first brought about at the request of the American Medical Association in a plea for support during medicine's struggle for freedom. Instead of a forthright stand, the American Nurses' Association said in part, "American nurses desire to remain free to provide nursing service in any prepaid health and medical care plan the American people adopt. . ." Nothing in the resolution condemned federal domination of health care, either as it affects medicine or nursing.

Here once more the national association has directed that the Kansas nurse shall follow a course apart from hospital and medical viewpoints. Her problem is now to decide which will provide her the best opportunity for service. It involves her personal future, the future of her profession, and her relationships with related professions as well as with the public. She has given the subject a great deal of thought, and it is sincerely hoped that her decision will prove to be wise.

Indigent Health Services

The Kansas Medical Society has had numerous meetings with the State Board of Social Welfare in an attempt to improve the program of indigent health care. The situation in this state is confused and without coherence. There are about as many plans as there are counties, and in each the program is practically autonomous.

The State Board of Social Welfare now advises that a solution shall be arrived at prior to January 1, and that the medical society may elect almost any reasonable program, except that it must be a uniform effort embracing the entire state. The welfare board has been most cordial and is today completely willing to cooperate. Even the demand that one state-wide program be prepared is not entirely the decision of this board. It represents, rather, federal regulations imposed through the force of considerable grants-in-aid.

The Kansas case load is falling. On July 31, a year ago, there were 69,759 persons on relief in Kansas. On July 31, this year, there were 63,693. Tentative figures reveal that approximately $4,000,000 was spent last year for indigent health services. This includes physicians' services, hospital expenses, drug bills, nurse and ambulance fees, etc. If the above figures are correct, and according to the best material available they appear reasonable, health care represents approximately 12 per cent of the total Kansas welfare cost.

The State Board of Social Welfare does not necessarily demand a reduction in this figure. We are asked only to supply a uniform program. This, then, is the basis of many conferences the medical society has held with the board of social welfare, and the following paragraphs represent a tentative, preliminary report. It is requested that physicians consider the problem, and suggestions for a solution will be most sincerely welcomed.

At the present moment two major plans have been given consideration. Each of them involves problems, but there is presumably no complete solution because total health care for the indigent of Kansas will not be purchased at normal charges. Therefore, whatever program is finally selected will certainly represent compromise in several directions.

Plan 1 is to give each client a monthly allotment with which he shall purchase his own health care. The formula is simple. If 12 per cent of the total budget is the correct figure for health care, then that money will be equitably disbursed among all persons on relief, which will give each person about $5.00 a month with which he will pay all his health service bills. This plan is acceptable on the basis of being uniform. It certainly will work a tremendous hardship on the hospitals because, unless considerable resources not known to the welfare department are available to the patient, the major health expenses will never be paid.

Plan 2 may be divided into three parts, each of which begins the same. The State Board of Social Welfare will set aside the health care budget for the entire indigent population of the state. Again, if the estimates are correct, this will be approximately $4,000,000 a year. Disbursements will be made through the board of social welfare. Each purveyor of a service will submit his bill to the welfare board where, at the end of the month, it will be prorated according to the available money, and individual checks will be issued. The welfare board heartily disapproves of this procedure on the grounds that it is socialistic. It is legal, however, again on the basis of its uniformity, and is in operation in some areas of this country.

A second means of disbursing this fund is through contract with Kansas Blue Cross and Blue Shield. This has been explored and rejected by the Kansas voluntary health agencies on the grounds that is is completely unrealistic with reference to expense.

The third possibility is to give this $4,000,000 in 12 installments to the medical society for distribution. In return, the medical society shall contract with the board of social welfare to supply a stated amount of health care. Under this proposal the medical society will inherit all the headaches of the operation of this program and would have no more, but probably no less, money on which to base its payments than is available today.

There is, within the last named plan, a framework which might permit this program to operate. Should the society succeed in contracting with the Kansas Hospital Association and the Kansas Pharmaceutical Association, whereby they will supply their services in return for a stipulated percentage of the total, the medical society might thereby be relieved of that portion of this effort. Then, with

Service Separations

As a service to physicians and communities in this state desiring additional medical personnel, the Journal of the Kansas Medical Society will publish in this column each month the names of medical officers who will shortly be separated from the armed forces. These are men who volunteered from Kansas, and many of them will probably be interested in finding locations in this state. Anyone interested in contacting these physicians may write to the address here given.

Joseph E. Seitz, M.D.
Wakeeney, Kansas

John L. Weaver, M.D.
4206 Prairie Lane
Mission, Kansas

George A. Westfall, Jr., M.D.
Hertzler Clinic
Halstead, Kansas

Niles A. Borop, Jr., M.D.
U. S. Army Hospital
Camp Carson, Colorado

Herbert Bunker, Jr., M.D.
U. S. Army Hospital
Fort Riley, Kansas

Charles C. Gilkey, M.D.
1731 Clay Street
Topeka, Kansas

Charles R. Hopper, M.D.
172 Artillery Loop
Fort Sam Houston, Texas

Edwin R. King, M.D.
1708 First Street, N.W.
Washington 1, D. C.

Harold Korner, M.D.
2601 High
Topeka, Kansas

Walter J. Nowers, M.D.
305 Handy Circle, Van Horne Park
Fort Bliss, Texas

Robert L. Stevens, M.D.
Oskaloosa, Kansas

Richard C. Tozer, M.D.
Winter V.A. Hospital
Topeka, Kansas

Robert Weimer, M.D.
206 Third Street
Fort Leavenworth, Kansas

Warren William McDougal, M.D.
1070 West 3rd Street
Colby, Kansas

Donald R. Pierce, M.D.
1015 Polk Street
Topeka, Kansas

Melvin A. Porter, M.D.
Dellvale, Kansas

Charles S. Davis, M.D.
115 West 16th Street
Galena, Kansas

Robert Arthur MacNaughton, M.D.
1426 West 20th Street
Wichita, Kansas

Rex Roger Taggart, M.D.
3700 Cambridge
Kansas City, Kansas

the remaining allotment, a formula could be devised upon which the money would be divided among each of the county medical societies within the state for whatever disbursement the individual societies cared to make.

The above is fragmentary and brief. Nothing has been decided at this time. It is easily possible that a totally different plan may ultimately be projected, or any of the above might be combined. This article, therefore, is a preliminary report to the membership in the hope that many suggestions may be received as to ways in which this large and important problem may more effectively be solved.

ACTIVITIES OF MEMBERS

Dr. Noble P. Sherwood, Lawrence, became emeritus professor of bacteriology at the University of Kansas on July 1. He was organizer of the department and was its chairman from 1917 to 1948. Although retiring from teaching, he will continue to direct Navy research on experimental strep infections and will collaborate with others on research on histoplasmosis.

* * *

Dr. Jerome S. Menaker, Wichita, recently became a diplomate of the American Board of Obstetrics and Gynecology.

* * *

Dr. Robert W. Myers has returned to his surgical practice at the Bethel Clinic, Newton, after spending 18 months as an Army surgeon overseas, principally in Korea.

* * *

Dr. George E. Burket, Kingman, announces that Dr. Sam Zweifel is now associated with him in practice. Dr. Zweifel was graduated from the University of Kansas School of Medicine in 1949 and was recently released from the Navy.

* * *

Dr. Charles E. Gollier, Independence, is now part time health officer for Montgomery County. He has submitted his resignation as coroner of the county.

* * *

Dr. Paul H. Wedin, Wichita, was speaker at a meeting of the Sedgwick County Pharmaceutical Association recently. His subject was "Tuberculosis and its Treatment."

* * *

Dr. Alexander C. Mitchell, who was graduated from the University of Kansas School of Medicine in 1950 and has been practicing in Clyde for the past year, has accepted an appointment to the University of Kansas Health Service staff at Watkins Memorial Hospital, Lawrence.

A $1,200 annual medical research fellowship has been established by the Wichita Foundation of Medical Research, Inc., at the University of Wichita in memory of the late Dr. James S. Hibbard.

* * *

Dr. Frederic Speer, Kansas City pediatrician, was speaker at a recent institute held in Kansas City for parents of blind children.

* * *

Dr. Robert O. Brown, Atchison, has been elected secretary-treasurer of the Atchison County Public Health Association.

* * *

Dr. Ralph H. Major, University of Kansas Medical Center, has been appointed delegate of the American Association of the History of Medicine to a meeting of the International Society of the History of Medicine at Nice, France, this month.

* * *

Dr. Ralph J. Metcalf, El Dorado, was named president of the city board of education at a meeting held last month. He has been a member of the board since 1949 and has just completed a term as vice president.

* * *

The Gelvin-Haughey Clinic, Concordia, announces that Dr. H. V. Stryker is now a member of the staff, specializing in internal medicine. Dr. Stryker has been on the staff of a clinic in Dubuque, Iowa. At Concordia he will fill the vacancy on the staff made by the recent resignation of Dr. Robert Chapman, who has returned to Oak Park, Illinois.

* * *

The Achenbach Memorial Hospital, Hardtner, announces the addition of two new members to its staff, Dr. Lonis L. Schurter and his wife, Dr. Betty Sue Schurter. Both hold degrees from Emory School of Medicine, Atlanta, Georgia.

* * *

Dr. Clair Cavanaugh, formerly on the staff of the Las Vegas Hospital, Las Vegas, Nevada, is now radiologist at St. Rose Hospital, Great Bend.

* * *

Dr. C. V. Haggman, after practicing 51 years in the Scandia community, announced his retirement this month and reported that he plans to make his future home in Kingsport, Tennessee.

* * *

Dr. V. J. Elson has been elected president of the board of education of District 21 in Paola.

* * *

Dr. S. T. Coughlin and Dr. LeRoy W. Shepard, Larned, announce that Dr. Joseph G. Millet is now associated with them in practice. Dr. Millet is a graduate of Creighton University and has completed a three-year residency in surgery at Creighton Memorial St. Joseph Hospital.

Dr. Charles M. Miller, Oakley, was honored at a community celebration on August 10. Speakers on the program were Governor Edward F. Arn and Dr. Warren F. Bernstorf, president of the Kansas Medical Society.

* * *
* * *

Dr. J. B. Ungles, who retired from active practice several years ago, has resumed practice in Satanta in association with Dr. Ronald J. Garst.

* * *

Dr. H. L. Patterson and Dr. W. R. Brenner, Larned, announce that work has begun on the construction of a new clinic building in which they will practice.

* * *

Dr. Marshall E. Hyde, who formerly practiced in Ottawa and recently has been on the staff of the Wichita VA Hospital, has bought the practice of the late Dr. Harold W. Palmer in Wichita.

Grants for Cancer Studies

Thirty-four Public Health Service grants, totaling $523,993, to aid cancer control studies in 16 states, were announced recently by the Federal Security Agency. The sum of $29,718 was granted the University of Kansas Medical Center for evaluation and development of sero-diagnostic tests for cancer, under the direction of Dr. Robert E. Stowell and Dr. J. H. Hill. An additional amount of $10,000 was appropriated for use in establishing a library of tumor specimens for pathologists in Kansas, Iowa, Missouri and Nebraska. Dr. Stowell and Dr. L. D. Stoddard will direct the latter project.

In the field of health, men of different races and creeds work easily together for objectives in which all men believe and which are of benefit to all.—*Frank G. Boudreau, M.D., Pub. Health Rep., April, 1952.*

Explaining the Kansas Plan



Warren F. Bernstorf, M.D., president of the Kansas Medical Society, was invited to visit with General Dwight D. Eisenhower in Denver on Tuesday, August 19. The purpose of the interview was completely non-partisan and non-political. The invitation was issued by Senator Frank Carlson of Kansas on the basis that General Eisenhower requested detailed information on the Kansas plan for supplying physicians to rural areas. Dr. Bernstorf explained how the program started and that it appears to be successful, thanks to the outstanding efforts of the School of Medicine at the University of Kansas and of the people of this state. At the conclusion of the conference Mrs. Eisenhower came into the room, and when a press photographer requested a picture she most graciously consented to joint the group.

Case Reports From The University of Kansas Medical Center Clinical Pathological Conference

Sudden Death

Edited by Glen R. Shepherd, M.D., and Mahlon H. Delp, M.D, from recordings of the conference participated in by the departments of medicine, pathology, radiology, and urology and the junior and senior classes of medical students.

Case Presentation

H. S., a 64-year-old colored male, was recalled into the medicine outpatient department for a routine follow-up visit. He suddenly died immediately after registering.

The patient was first seen at KUMC three years previously in the genito-urinary department on July 16, 1948, complaining of inability to void. He stated that he first had this difficulty five to six years before admission and had had to be catheterized. He also complained of minimal exertional dyspnea at that time.

Physical examination revealed a blood pressure of 116/70, pulse 78 and regular. Heart sounds were distant but no murmurs or enlargement were noted. Tenderness was elicited over the bladder region. The bladder was palpable two inches above the symphysis. Rectal examination showed Grade I benign prostatic hypertrophy. There were no other positive physical findings at this time.

Blood count, Wassermann and Kahn, NPN and blood sugar were normal. I. V. pyelograms showed a nonfunctioning right kidney and a hydronephrosis on the left. A transurethral resection was performed and recovery was uneventful. He was dismissed August 3, 1948.

The patient was seen in the medicine outpatient department October 25, 1948, complaining of a pain in his left side which had awakened him, was sharp in character and radiated into his left testicle. The pain had persisted since onset but became less intense. No blood appeared in the urine at that time. However, because of urinary retention, catheterization was necessary.

On physical examination, fundoscopic showed venous nicking where crossed by an arteriole. The PMI was one centimeter to the left of the mid clavicular line. Grade III blowing diastolic and late systolic murmurs were noted at the apex. The second pulmonic sound snapped. The abdomen showed some tenderness in the left flank with a splinting of the muscles.

Laboratory results were as follows: Sedimentation rate 17 millimeters in an hour; blood examination showed 97 per cent hemoglobin, 5,510,000 red blood cells, 7,150 white blood cells, normal differential count, blood sugar 72, NPN 39.5, Wassermann and Kahn negative; spinal fluid examination showed negative Pandy, negative colloidal gold curve, negative Wassermann, total protein 55½ mgm. per cent, cell count 4, no red blood cells. After x-ray studies, the patient was referred back to the genito-urinary department for further examination. An alkaline and acid phosphatase were within normal limits.

On October 28, 1948, the patient was digitalized and on November 4, 1948, began vomiting. Digitalis was discontinued for two days. Numerous extrasystoles appeared. On November 1 the patient was referred back from the genito-urinary outpatient department with a diagnosis of no pathology in the kidney and urinary bladder. On November 29 he was referred again to the genito-urinary outpatient department following a recurrence of the pain in the left flank.

The patient was readmitted to the GU service March 22, 1949, and April 1, 1949, at which time his findings were essentially unchanged. Medical consultation was obtained and the patient was redigitalized at that time.

He was seen again in the medicine outpatient department on May 16, 1949, at which time he was complaining of seeing spots before his eyes and of being nauseated. Digitalis intoxication was considered. On July 5, 1949, the patient had a transient spell of unconsciousness and accompanying precordial pain which radiated into the left shoulder. On July 25, 1949, intense pain developed in the left flank with some urinary retention. The patient was again referred to the GU service. Digitalis medication was continued. In November, 1949, a complaint of some edema of the hands and feet appears on the record. The patient was then absent from the outpatient department for about a year.

He was seen September 7, 1950, complaining of typical exertional pain in the chest, noted also following eating. Examination showed the pulse to be 72 with occasional prematurities. The patient had increasing shortness of breath. Digitalis was again started, following which he complained of flashes of light in front of his eyes, and many extrasystoles were noted the next week. Reduction in the dosage of digitalis resulted in improvement of the symptoms on October 9, 1950.

The patient was not seen again until February 14, 1951, at which time he had been called in for a follow-up visit. His wife stated that he had been feeling fairly well except for occasional chest pain and that he had been taking digitalis. The patient collapsed on the floor of the outpatient department immediately upon arrival, became quite rigid and before his chest could be examined, expired. The terminal episode lasted five minutes.

Question: Did the heart murmurs remain about the same on subsequent examinations?

Dr. Robert Bolinger (Medicine): I didn't see him on his first examination in the genito-urinary clinic, but from the time I saw him, October 25, 1948, I saw no change in his murmurs at all. He had the same loud murmurs the whole time.

Question: Had he had any respiratory infections or anything preceding this episode?

Dr. Bolinger: He had no febrile episodes, no evidence of chills or fever. The only fever recorded in the history was that following his prostectomy. It was a slight fever.

Question: Were the I.V. pyelograms done on his first admission to the GU service?

Dr. Bolinger: No. They were not. They were done in the outpatient department.

Dr. Delp: I think Dr. Bolinger is correct. There were apparently two procedures carried out. I think he had a second transurethral. Any other questions? This man's serology was reported as negative. Is that right, Doctor?

Dr. Bolinger: Yes, sir, on several occasions.

Dr. Delp: Had he had any anti-luetic treatment at any time?

Dr. Bolinger: He had only local treatment to the chancre.

Question: How much digitalis was he taking? Do you have a fair idea of the last two or three months?

Dr. Bolinger: We don't know certainly. The dosage prescribed before he left here was one tablet of digitalis leaf (1.28 grams) five times a week. That was the last order given, in October.

Dr. Delp: It is your impression, isn't it, Dr. Bolinger, that the man at various times had too much digitalis?

Dr. Bolinger: On at least three occasions.

Dr. Delp: At one time he was fully digitalized and being maintained. He was then re-digitalized. Is that right?

Dr. Bolinger: As near as I can tell from the records.

Dr. Delp: May we see his electrocardiographic tracings? I think there are three.

Dr. E. Grey Dimond (Medicine): The first EKG was taken on October 28, 1948. We note fairly regular complexes with the QRS duration 0.14 seconds, indicating a bundle branch block. Several ventricular premature contractions appear. A chest lead indicates a right bundle branch block.

On November 4, 1948, the EKG shows the heart was well digitalized. The RST segment is cupped. Ventricular premature contractions alternate with normal contractions and appear to originate from several sites. This would palpate as a pulsus bigeminus. This could be due either to coronary disease or more probably to coronary disease irritated by a little digitalis.

On March 23, 1949, the patient had a bradycardia

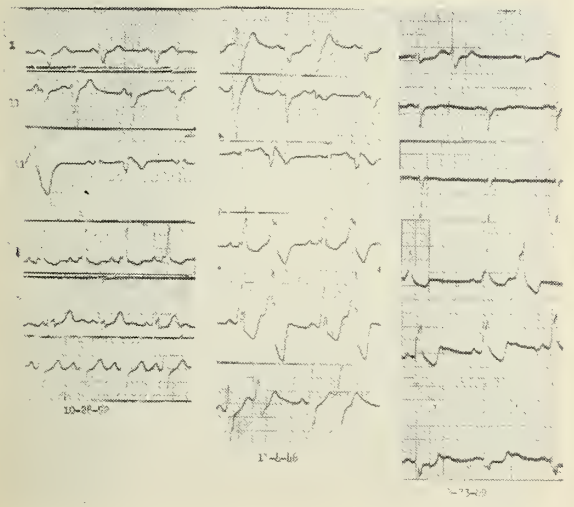


Figure I. EKG's on dates shown. Their interpretations are in text.

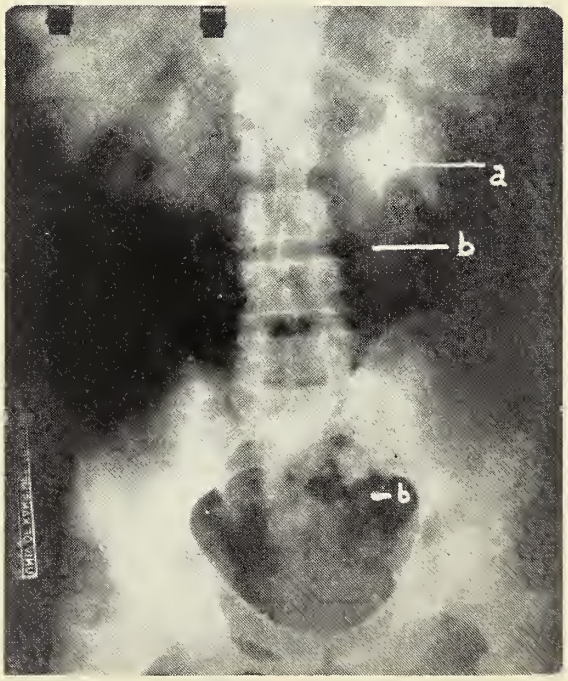


Figure II. I.V. pyelogram March 22, 1949. (a) Shows dilated left renal pelvis and (b) dilated left ureter.

with a rate of 60. There are notched P waves in lead II. PR interval then was 0.16 second. Together with a sinus bradycardia, he had infrequent ventricular premature contractions and right bundle branch block.

Dr. Donald Germann (Radiology): KUB films taken in July and November of 1948 showed degenerative changes in the pelvic vessels—peripheral vascular sclerosis, no evidence of kidney function on the right side. The left kidney pelvis was dilated markedly together with a severe hydronephrosis.

A chest film in March, 1949, showed the heart not unusually large but with a hypertensive contour, a definite boot shape. Though the pulmonary artery was not particularly prominent, the aortic knob was prominent enough to indicate some sclerotic change in the aorta.

An I.V. pyelogram performed October 11, 1949, showed the same findings as on the previous examination.

Dr. Delp: Mr. Vale Page.

Differential Diagnosis

Mr. Vale Page (Senior medical student*): This is the story of a man who climbed the stairs to see the doctor, fell on the floor and died. Had the patient stayed home and avoided exertion, he also might have run out of digitalis. So I think maybe those two points deserve a little discussion. We must begin with a differential diagnosis on the causes of sudden death.

I first considered Adams-Stokes syndrome, a heart block. According to Beckman, this can be caused by arteriosclerosis, syphilis, rheumatic heart disease, tuberculosis, and adipose changes in the conduction tract. According to Levine, the Adams-Stokes syndrome is a condition in which syncope is a major and a characteristic finding. Usually there are sudden unexpected unconscious spells with or without convulsions. It is said the exact diagnosis is dependent upon findings in the EKG made during an attack. I can't exactly rule out Adams-Stokes syndrome but then, outside of this very sudden attack, there was no cry of pain and no description of pain. I can't diagnose Adams-Stokes syndrome in this patient. On the other hand it might have been present.

For pulmonary embolism I would expect to have a history of a previous operation some time soon before the patient's death, and the presence of phlebitis. But we don't have that. This man may have died from a pulmonary embolism. Usually there is sudden severe dyspnea, cyanosis, and precordial pain. Precordial pain is not described in this patient, nor is spitting of blood.

Aortic regurgitation may be present. Sudden death from this occurs by cardiac failure or during an anginal attack. The positive auscultatory findings are suggestive. But did this patient have anginal pain? Although we have fairly good evidence that this man had arteriosclerotic heart disease, I think the murmur is not too significant. You can have a murmur from fever, anemia, or hypertension with a left ventricular dilatation resulting in a murmur. A murmur also can occur with coronary heart disease and myocardial disease. I don't actually believe that he had a valvular disease.

My next consideration was that of ruptured aortic aneurysm. Until I looked at the x-ray I hadn't thought much about that. The protocol records a chancre at age 18, so you certainly have to consider that. I hadn't thought much about it because one of the prerequisites is the knowledge that an aneurysm does exist. In the exodus there were no signs of hemorrhage. There was cyanosis. I really don't think that he had a ruptured aortic aneurysm. The size of the aortic knobs again confuses me and makes me wonder if he did or did not have a ruptured aortic aneurysm. The x-ray people say he didn't.

Cerebral hemorrhage was my next consideration. Certainly there was hardly any time to examine the patient to find out whether he had had one or not. There were no recorded neurological findings. If the patient had been hypertensive, I might be inclined to think that this was a cerebral hemorrhage.

Now I must go on to my final diagnosis. The cause of 50 to 80 per cent of all cardiac deaths, including sudden deaths, is coronary occlusion. Attacks not infrequently follow a meal, and we have a description of this patient with exertional pain after a heavy meal. The coronary occlusion causes substernal and precordial anginal pain. He did have some cardiac enlargement described. I believe that is the final diagnosis.

I would like to say a few things about the digitalis. Digitalis causes extrasystoles in patients only if myocardial damage exists. I think we can pretty well assume that myocardial damage did exist with this patient. Scherf and Boyd say that in patients who show extrasystoles during treatment with digitalis, it is very necessary that digitalis be discontinued. If you continue with it, the number of extrasystoles often increase and threaten a ventricular tachycardia, with perhaps a ventricular fibrillation in the end. Ventricular fibrillation is one of the causes of sudden death especially in patients with coronary artery disease. It is rarely a transient phenomenon, but rather kills.

I think the patient died of coronary occlusion and cerebral anoxia.

*Dr. Page received his M.D. in June, 1951. He is now in practice at Norton, Kansas.

Dr. Delp: Dr. Berry, may we have your differential diagnosis?

Dr. Max Berry (Medicine): I think it hardly possible to make a positive diagnosis as to what happened to this patient because he wasn't under sufficiently close observation. A good deal of importance might have gone on during his long absences from the clinic that would contribute to making a diagnosis. Ht might have had pain in his chest. He could have had symptoms enough to make a diagnosis of myocardial infarction during that time and make it without any hesitation.

From the chart, my impression was that this man probably died as a result of ventricular fibrillation aggravated by digitalis intoxication. That is not a rare turn of events. It is possible that he was intoxicated on the dosage of digitalis that he was given, although that should have been a rather safe margin, five 1.28 grain tablets of digitalis leaf in a week. I don't think he had a ventricular fibrillation from that much digitalis. It is possible, but it isn't very likely. The patient did have a disturbance in conduction—the bundle branch block. This should have made the patient a little more liable to develop an increased irritability and such a disturbance of rhythm as ventricular fibrillation.

The final cause of death was almost certainly one of two things. It was either a ventricular fibrillation or a rupture of the heart or the aorta. Since we don't have a history of a coronary occlusion or a myocardial infarction occurring during this interval, and although we don't have a history that he had any pain, it would be a little unlikely for a tear in the aorta to occur that suddenly, except on the basis of an old aneurysm. A dissecting aneurysm usually takes longer than that to cause death. If it were a rupture of the aorta, it had to be a rupture on the basis of an old aneurysm, which I don't think he had.

In the absence of any other evidence, we will say that it either had to be a rupture of his heart or ventricular fibrillation. I think it had to be ventricular fibrillation because all of his history points to digitalis intoxication. At least it points to a highly increased irritability of the myocardium. He had multifocal premature ventricular systoles which were exhibited on one of these electrocardiograms some year and a half ago.

I don't think there is very much question of doubt about the mechanism of his death. I don't believe he died as a result of being poisoned on digitalis from the dose prescribed. He probably took more than prescribed.

Dr. Delp: You think it is possible he had been overdigitalized for a long time?

Dr. Berry: I think he was. I doubt very much that it had anything to do with the development of his bundle branch block.

Dr. Delp: Do you see any remote connection, Dr. Mitchell, between this patient's hydronephrosis and non-functioning kidney and the terminal situation?

Dr. Andrew Mitchell (Urology): No, I don't. I think if we had made retrograde studies on him we would probably have found that the right kidney had the same picture as the left, only more so. Some of it was damaged to the point of non-function by his lower urinary tract obstruction. From the amount of dye he did excrete on the last intravenous pyelogram, he certainly had enough remaining function that he was no invalid on the basis of renal failure.

Dr. Delp: Do you think that this non-functioning kidney on the right was a direct result of his prostatic obstruction?

Dr. Mitchell: I am assuming that it was, as well as the hydronephrosis on the other side.

Dr. Delp: You don't think this man had a Goldblatt kidney and over a period of years developed a hypertension that we didn't recognize?

Dr. Mitchell: No.

Dr. Delp: May we hear from the pathologists now?

Pathology Report

Dr. Elizabeth Corbett (Pathology): This was a well developed 65-year-old colored male. The body cavities showed nothing remarkable. The heart weighed 400 grams and was flabby. There were several white milk patches seen on the visceral pericardium. The endocardium showed considerable subendocardial fibrosis and sclerotic plaques. There was a small endocardial polyp in the left ventricle under the mitral valve ring, a polyp about three mm. in diameter and attached by a thin fine pedicle. The valve rings were dilated about one to two centimeters. The mitral and tricuspid valves were slightly thickened. There were a few nodules along the free edges of the mitral valve which are suggestive of rheumatic fever. The chordae tendineae from the mitral valve were slightly shortened and thickened. There was some sclerosis of the aortic ring.

On the upper posterior portion of the septum and in the left ventricle, the upper posterior portion, there was a rather large fibrous area extending through all the muscle wall. This formed some sort of an aneurysmal dilatation in the left ventricle. There were other old fibrotic scarred areas seen throughout the myocardium. The right coronaries leading into the old infarcted area were markedly sclerotic, and there was also one coming over from the left side that was scarred and contracted. Otherwise the vessels were patent, but they showed some sclerosis of the intima. There was some sclerosis of the pulmonary vessels.

The right kidney weighed only 100 grams. The

pelvis was markedly dilated and the kidney substance was atrophied, leaving a shell of remaining kidney tissue measuring only three mm. The left kidney weighed 200 grams and its pelvis was less dilated. On the left the glomeruli were visible and the medulla was striated. The cortical medullary junction was distinct there. The ureters were dilated and the walls were thickened on both sides.

The prostate was small, slightly nodular and firm.

The aorta was of the usual size with moderate ulceration, calcification, and sclerotic plaques. There were some stellate scars in the thoracic portion of the aorta, the longitudinal wrinkling at the abdominal portion.

The other organs showed nothing remarkable as to size or pathological findings.

The provisional gross anatomical diagnoses were as follows: generalized arteriosclerosis, coronary sclerosis, chronic fibrous myocarditis, aneurysm of the left ventricle, hypertrophy and dilatation of the heart, bilateral hydronephrosis, hydro-ureter, arteriolar nephrosclerosis, probably syphilitic aortitis, narrowed right coronary ostia, chronic splenitis, and old healed primary tuberculosis of the right lung.

Dr. Delp: Do you feel, Dr. Hamilton, that this man had evidence of lues in his aorta? Are there really syphilitic lesions present?

Dr. Thomas R. Hamilton (Pathology): Yes.

Dr. Delp: Do you really think that the anatomical alterations here are enough to account for this sudden death?

Dr. Hamilton: Yes, I do.

Dr. Delp: Well, I think that you probably have to bridge a gap with intangibles which have to do with disturbed physiology. The patient was living and active one minute; the next he died.

Dr. Delp: Any questions of Dr. Hamilton now?

Question: I would like to ask Dr. Hamilton the cause of death.

Dr. Hamilton: Coronary insufficiency from an occluded ostium and myocardial infarction.

Dr. Dimond: That is an anatomical lesion. Disturbed physiology must explain this death.

Dr. Hamilton: He is right. We can't show ventricular fibrillation, but we feel that it occurred.

Question: This is a general question. I just want to ask if this man's kidney impairment had any bearing upon the digitalis sensitivity?

Dr. Dimond: Not sensitivity. It might account for his lack of excretion of it. That is not saying the same thing that you just said. An animal with complete anuria requires the same amount of digitalis to digitalize in a matter of six hours, but you don't have to give any maintenance dose thereafter.

Dr. Delp: Do you think that might have occurred in this patient?

Dr. Dimond: I don't know.

Dr. Delp: It doesn't seem very reasonable does it? He was showing no evidence of retention of other normally excreted substances.

Dr. Dimond: If he was going to die of digitalis he should have died a year and a half ago. That was when he was most severely poisoned.

Dr. Delp: There are a few things I would like Dr. Dimond to say in summary concerning the question of sudden death.

Dr. Dimond: I would say that truly sudden death is practically always due to coronary disease with ventricular fibrillation. Other forms of death are in reality less rapid and less dramatic such as pulmonary embolus, rupture of a great vessel, or rupture of the heart. Only asystole of the heart comes with irrevocable rapidity. It is interesting to note that most people think that a stroke is a cause of instantaneous death, but most people with a stroke do not die instantaneously. And lastly, the type of sudden death we see in the hospital most commonly consumes many minutes.

Summary

A patient with known heart disease, much anatomical renal change and digitalis intoxication making a routine visit to the physician suddenly falls upon the floor and within less than five minutes is pronounced dead. The pathologists are able to demonstrate gross anatomical evidence of advanced coronary artery disease, aneurysmal change in the left ventricle and bilateral hydronephrosis.

It is clear that these lesions, undoubtedly present in a living breathing patient as he walked into the physician's office, can hardly be used as an explanation for death. Something is lacking. We must turn to disturbed physiology for satisfactory answers. Probably a critical arrhythmia, such as ventricular fibrillation, best answers the question. Such clinical features as angina pectoris, myocardial irritability, digitalis intoxication, and pathologic findings of coronary artery disease, syphilitic aortitis and kidney damage fit together well in providing the proper background for this fatal disturbance.

Using the elapsed time element as criteria, "sudden death" is most often due to critical disturbances of cardiac rhythm resulting in functional asystole. Such fatal blows as rupture of the heart, rupture of the aorta, pulmonary embolization and cerebral hemorrhages kill much more slowly.

All products advertised in the Journal of the Kansas Medical Society have been approved by the appropriate councils of the American Medical Association, giving assurance to the physician that advertising claims are justified. The physician's patronage of firms advertising in the Journal is an expression of his appreciation for their support of the state publication.

BLUE SHIELD

New Faces—New Challenges

A coming issue of the Journal of the Kansas Medical Society will carry the names of the newly appointed committees. These are the people upon whom Dr. W. F. Bernstorf, the president, will depend for assistance in his important job at the helm of the Kansas Medical Society for the coming year. Among the committees is the Blue Shield Relations Committee, a most important one, giving Kansas doctors the opportunity to participate in the advancement and administration of their own prepaid medical care program.

The Blue Cross-Blue Shield staff welcomes the opportunity of meeting with the new members of this committee for instruction, inspiration and cooperation. Each member of the committee will be asked to appoint his own group of representatives from the county medical societies in his councilor district. Through the smaller groups, communication can be established with the doctors at the county level. New ideas, progress reports, suggestions for increased participation by the doctor—all these can be brought to the county medical society by the doctor serving on the local committees.

The 12 members of the Blue Shield Relations Committee will meet with staff members some time in October. Plans will then be made for the fulfillment of proposals made at the annual meeting in April. Local meetings will be arranged by the members of this committee and attended by staff members. Suggestions for projects are always welcome.

The program of economy in utilization was brought to the county medical societies last year by staff members who attended meetings whenever possible. Continued cooperation by Kansas doctors is probably the most important answer to the high utilization of hospital and medical facilities by Kansas members. In an effort to throw additional light on why some areas have high utilization and some low, a detailed study is being made of the utilization in two counties as it relates to the experience in employee groups. These groups are being examined on the theory that the age distribution between the two counties would be much the same within this category of membership.

Other studies are proposed, such as a break-down of cases by amounts in both Blue Cross and Blue Shield in order to examine the possibilities of a deductible in both services. Also, a continuation of the study of group utilization will be valuable in determining underwriting requirements.

When the decision was made to do the Shawnee County enrollment, it was decided to experiment with one phase of enrollment policy by prohibiting people from enrolling in community membership who were eligible to enroll through an employee group where there were eight or more employees. The results of this enrollment will be interesting and important in the management of future enrollments in relatively large communities.

The doctor's assistant plays an important part in the success of Blue Cross-Blue Shield in Kansas. That is why the close cooperation between the Kansas Medical Assistants' Society and the staff has been so valuable. Suggestions for improvement in these relations will be welcomed as well as new ideas for the part Blue Cross-Blue Shield can play in the expansion of this program in Kansas.

Other states have instituted a program of individual personal contacts; this is desirable but expensive and time consuming on the part of the physician as well as the staff member. Such meetings can be arranged whenever necessary or whenever the physician requests them. Otherwise, the program above outlined will be followed through the coming year in an attempt to bring into more active use the talents and interest of Kansas physicians and their assistants.

Society of Audiologists Formed

A new organization, the Society of Hearing Aid Audiologists, was formed recently at a meeting held in Chicago for the purpose of "satisfying the long-recognized need by the public and medical profession for a responsible reference in selecting competent hearing aid consultants and firms." Thornton Zanolli, president of Audiphone Company of Detroit, was elected president.

Applicants seeking certification by the society will be required to take written and oral examinations. Those meeting the qualifications will be listed in a roster published annually and distributed to otologists, medical associations, government agencies, and others in related fields of audiology.

The program of the group also includes publication of a journal, "The Decibel," containing articles written by members of the medical profession.

Committee Studies Rheumatic Fever

As a starting point in its work to combat a specific malady, the Rheumatic Fever Committee of the Kansas Heart Association has outlined a threefold plan, embodying the following objectives: (1) setting up diagnostic practices and standards; (2) assembling statistics on the incidence of rheumatic fever, and (3) preparing a sound educational program for the general public.

Our advertisers will appreciate your patronage.

To Help in National Campaign

Mr. Clarence G. Munns, former executive secretary of the Kansas Medical Society, has been appointed to direct the national Republican campaign of General Dwight D. Eisenhower with reference to the medical, dental, hospital and pharmaceutical professions. He has accepted this assignment and is now in Washington, D. C., where he will remain until approximately the time of the November election.

Command Performance

The Kansas City Southwest Clinical Society announces that its annual clinical conference, this year a "Command Performance," will be held at the Municipal Auditorium, Kansas City, October 6 through October 9. The name for this year's program is derived from the fact that the panel of speakers is made up of physicians who have appeared on the program and are being presented again because of popular demand.

This year marks the 30th fall conference sponsored by the society, 30 years of postgraduate instruction by outstanding men of medicine. It has not been the policy of the society in the past to invite speakers to take part a second time, but the executive committee made an exception this year to celebrate the 30th anniversary. Since it was not possible to comply with all requests for speakers to return, 16 physicians best fitted for the program this year were invited to take part. The speakers are listed in an advertisement on Page 460 of this issue.

It is the society's hope that additional participants in past programs may be brought back for future conferences.

All physicians are invited to attend this year's "Command Performance."

Refresher Course in Cardiology

Plans have been completed by the Committee on the Study of Heart Disease for the annual refresher course in cardiology, to be held at the Broadview Hotel, Emporia, October 29 through November 1. Dr. E. Cowles Andrus, associate professor of medicine at Johns Hopkins University, Baltimore, will conduct the course.

The program has been designed for physicians with previous postgraduate work in cardiovascular diseases. The speaker will review pertinent advances in which his department has been interested and original work being conducted in the department.

The course is limited to 40 matriculants, and all places have been filled. Physicians who wish to attend in case there are cancellations by those now registered, may have their names placed on an alternate list by sending checks for the matriculation fee, $25, to the Kansas Medical Society. Checks are to be made payable to the chairman of the committee, Dr. Philip W. Morgan. The alternate list will be closed October 1.

The committee is also making plans for a one-day course in cardiology to be held later in the fall. There will be no attendance limit on the latter course.

Kansas Licenses to 131

One hundred thirty-one physicians recently received licenses to practice in Kansas, according to a report issued last month by the Kansas State Board of Medical Registration and Examination. Of this number, 85 were issued licenses by virtue of having successfully completed examinations given on June 4 and 5. The remaining 46, who held licenses issued by other states or by the National Board of Medical Examiners, were licensed by endorsement.

Those who took the examination, for the most part, were graduated from the University of Kansas School of Medicine in June and are now serving internships at hospitals throughout the country. Those licensed by endorsement, and the locations in which they intend to practice, are as follows: Dr. Irma Gladys Aleshire, Wichita; Dr. Henry Edward Altenberg, Topeka; Dr. Henry Kummel Baker, Chanute; Dr. George Andrew Colom, Leavenworth; Dr. Lorin Elmer Dickelmann, Hutchinson; Dr. William Alton Doering, no location indicated; Dr. Fred Iverson Dorman, Jr., no location indicated; Dr. Ernest Daniel Erickson, Arkansas City.

Dr. James Scheller Feurig, Manhattan; Dr. John Winston Franklin, Jr., Arkansas City; Dr. Theodore Samuel Gage, Johnson County; Dr. William Charles Grasley, Liberal; Dr. Charles Henry Hargreaves, Hugoton; Dr. Marion Smith Hay, Wichita; Dr. John Francis Head, Topeka; Dr. Elmer Lloyd Hill, no location indicated; Dr. George Hopson, Liberal; Dr. Jerome Bertram Katz, Topeka; Dr. Pauline June Kirkpatrick, Overland Park; Dr. William Washington Kridelbaugh, Arkansas City; Dr. James Joseph Lally, Kansas City; Dr. Joseph Meyer Lichter, Kansas City; Dr. Irving Ira Luftman, Wichita.

Dr. Spencer Charles McCrae, Salina; Dr. Justin Joseph McDonald, Coffeyville; Dr. Richard Harry Moorman, Winfield; Dr. Nova Lemoine Morgan, Kiowa; Dr. John Rapp Neuenschwander, Hoxie; Dr. Frederick P. Niedermeyer, Kansas City; Dr. Joseph Dove Noshpitz, Topeka; Dr. James Francis O'Malley, Kansas City; Dr. Robert Henry Owens, Kansas City; Dr. Cyrus Harold Pachter, Topeka; Dr. Sidney Pakula, Kansas City; Dr. Lawrence W. Patzkowsky, Kiowa; Dr. Donald Earl Robinson, Kansas City.

Dr. Edward Augustus Scollin, Wichita; Dr. Lester

Dale Shook, Kansas City; Dr. William Oscar Sires, Topeka; Dr. William Joseph Spanos, Kansas City; Dr. James Carlisle Steele, Jr., Sunflower; Dr. Robert Jachens Vitt, Hays; Dr. Bert Heyward Walling, Jr., Topeka; Dr. Vernon LeRoy Weeks, Arkansas City; Dr. William Clarke Wescoe, Kansas City.

ANNOUNCEMENTS

The 30th annual clinical conference sponsored by the Kansas City Southwest Clinical Society will be held at the Municipal Auditorium, Kansas City, Missouri, October 6-9, 1952. All physicians are invited to attend.

* * *

The annual dinner of the University of Kansas Medical Alumni Association will be held at 6:30 on Wednesday, October 8, at the Hotel President, Kansas City. Reservations may be made through Dr. Mervin J. Rumold, Plaza Time Building, Kansas City 2, Missouri.

* * *

The National Gastroenterological Association will hold its 17th annual convention and scientific session at the Hotel Statler, New York City, October 20-22. Immediately afterward, October 23-25, the association will conduct its fourth annual course in postgraduate gastroenterology under the direction of Dr. Owen H. Wangensteen of Minneapolis and Dr. I. Snapper of New York. Programs and other data may be secured from the association, 1819 Broadway, New York 23, New York.

* * *

The annual Kansas Conference on Family Life will be held in Salina on Thursday, October 30, with morning, afternoon and evening sessions, general meetings followed by discussion groups. The theme of the conference is "Mobilizing Community Resources for Better Family Life." Headline speakers will include Dr. Rose Cologne of Pennsylvania State College and Dr. Robert Foster, director of marriage counselling at the Menninger Foundation, Topeka.

* * *

The American Dermatological Association has announced its annual prize essay contest, offering $300 for the best manuscript submitted on original work, not previously published, relative to some fundamental aspect of dermatology or syphilology. Manuscripts must be submitted in triplicate not later than January 1, 1953, to Dr. Louis A. Brunsting, American Dermatological Association, 102-110 Second Avenue, Southwest, Rochester, Minnesota.

* * *

The 20th anniversary clinical assembly of the Omaha Mid-West Clinical Society will be held at the Hotel Paxton, Omaha, October 27 through October 31. An outstanding program will be presented, including addresses, clinics, panel discussions, question and answer periods, motion pictures, and scientific and technical exhibits. The feature on Friday morning will be a panel discussion on chronic diseases, presented by five guest speakers.

The assembly has been approved by the American Academy of General Practice. Members of the academy who attend will be credited with the actual number of hours they are present at the sessions.

Programs will be mailed October 10. Complete information may be secured by writing the society at 1031 Medical Arts Building, Omaha, Nebraska.

* * *

The next annual meeting of the American Academy of Obstetrics and Gynecology will be held at the Palmer House, Chicago, December 15-17. Information on the meeting may be secured from the secretary, Dr. Ralph A. Reis, 16 South Michigan, Chicago 3, Illinois.

The 94th annual session of the Kansas Medical Society will be held in Wichita, May 4-7, 1953.

DEATH NOTICES

ELIJAH MOBRY OWEN, M.D.

Dr. E. M. Owen, 89, an honorary member of the Douglas County Society, died at his home in Lawrence on August 19. He had practiced in Lawrence for 53 years, although he had been inactive because of poor health in recent years. Dr. Owen was a graduate of the American School of Osteopathy, and later studied medicine, receiving his degree from the University Medical College of Kansas City in 1906.

* * *

RICHARD ROBERT SHELDON, M.D.

Dr. R. R. Sheldon, 52, a Salina surgeon since 1930, died August 24 at the University of Kansas Medical Center. He was a native Kansan and was a graduate of the University of Kansas School of Medicine, also interning and serving a residency there. He was an active member of the Saline County Society.

* * *

J. ELIOT FOLTZ, M.D.

Dr. J. Eliot Foltz, 73, who had practiced in Hutchinson 48 years, died at his home there August 20 after an illness of three months. He was an active member of the Reno County Society. Dr. Foltz was graduated from the University of Illinois College of Medicine in 1904, and began practice in Hutchinson immediately afterward. He specialized in surgery and was a fellow of the American College of Surgeons.

Senior Thesis from the University of Kansas Medical School*

An Evaluation of Thyroid Function Tests**

David Rice, M.D.

Kansas City, Kansas

When Dr. Hertzler, speaking of the basal metabolism machine, said, "Them Boston Boys think that a tin can has more sense than I have," (6-p. 244) he struck at the heart of the problem of the differential diagnosis of thyroid disease. He was obviously pleading for the application of clinical judgment in the evaluation of indirect measurements of thyroid function. If this plea had always been regarded, much of the confusion in evaluating thyroid function tests would have been avoided.

Judgment as to the value of thyroid function tests has been clouded by two main sources of confusion. One has been lack of knowledge of the exact mechanism of thyroid function. The other has been the fact that all these tests have measured some indirect manifestation of thyroid activity. Final evaluation must be made by correlation of test results with clinical evidence at hand and with therapeutic results as guided by the test.

The use of radioactive iodine has added greatly to the knowledge of thyroid physiology.[23, 65, 67, 40] Two new types of thyroid function tests are now being used. The first is based upon various measurements of radioactive iodine, and the second is the chemical determination of the protein bound iodine in the blood and plasma. These new developments make it necessary to re-evaluate the entire subject of such tests. Few definite conclusions are justified but an understanding of the direction of investigation will aid the practitioner in evaluating the tests as they become available to him.

Basal Metabolic Rate

"The BMR is a measurement of oxygen consumption, the end result of a great many oxidative processes, and not necessarily of that alone associated with the transport, utilization, and breakdown of the thyroid hormone."[10] Failure to keep this fact in mind has been the basis of much disagreement as to the value of the BMR.

In the evaluation of the BMR it must always be kept in mind that this test does not distinguish thyroid from non-thyroid causes of disturbed metabolism. Non-thyroid causes of hypermetabolism include malignant hypertension, neurosis, organic heart disease, neurocirculatory asthenia, pernicious anemia, polycythemia vera, leukemia, pregnancy, adrenocortical tumors, chronic alcoholism, overwork, certain infectious diseases, and thyroid administration. Non-thyroid hypometabolism can result from neuroses, Addison's disease, Simmond's disease or other pituitary disorders, and be present in iatrogenic hypothyroidism and in patients with some signs of hyperthyroidism but without evidence of calorigenic increase.[5, 6, 9, 15, 20, 24, 30, 39, 42, 51, 54, 58]

Correlation of normal values of basal metabolic rate with good clinical judgment and with therapeutic results varies from clinic to clinic. Salter et al[54] had 29 per cent of a series of 100 cases in which the BMR was not compatible with the clinical diagnosis. Jaffe and Ottoman[21] reported 32.7 per cent error in the BMR. Roswit and co-workers[52] found 31 per cent false high and 5 per cent false low BMR's in a series of euthyroid patients. This group considered the test outmoded by more recently developed tests. Keating and his group[24] took a different attitude. They felt at the time of writing (November 1950) that the BMR, when carefully evaluated, was still the most useful of the laboratory measures of thyroid function commonly available.

Blood Cholesterol Level

Hurxthal[19, 20] has clearly shown a statistical reciprocal relationship to exist between thyroid function and the blood cholesterol levels. He believed this relationship to be useful in estimation of thyroid function. He and others[36] reported 47 cases of hyperthyroidism in which the blood cholesterol was from 71 to 180 mg. per cent and 23 cases of myxedema in which the level was from 218 to 500 mg. per cent. They reported a normal maximum of 230 mg. per cent. They believed there was a usable correlation with the degree of severity of dysfunction in the extremely high and markedly depressed levels. In hyperthyroid states, if the blood cholesterol level was below 100 mg. per cent, they believed a toxic state and a poor surgical risk was probable. When the level was above 180 mg. per cent, only slight toxicity was apt to be present.

Roswit, Rosenkrantz, and co-workers,[52] using a range of 150 to 250 mg. per cent of cholesterol for normal values, interpreted 51 per cent of hyperthyroids correctly and 59 per cent of euthyroids correctly. They considered the test of no aid in the diagnosis of thyroid disturbances. Peters and Man[44]

*This is one of 11 senior theses selected for publication by the Editorial Board from a group of 15 judged the best by the faculty of the University of Kansas School of Medicine.

**Thesis written while the author was a senior student at the University of Kansas School of Medicine. Dr. Rice is now serving his internship at St. Margaret's Hospital, Kansas City, Kansas.

found in outspoken, uncomplicated hypothyroidism that the serum cholesterol was elevated but that it was not proportional to severity. They found it of little or no value in the detection of hypothyroidism secondary to pituitary or adrenal insufficiency. They considered it of no aid in the detection of overactivity of the thyroid. McCullagh and Schneider[39] found it seldom useful in cases where the clinical diagnosis was in question.

Radioactive Iodine

Following the oral ingestion of a tracer dose of radioactive iodine, I^{131}, the concentration and percentage distribution in the thyroid gland, in the blood, and in the urine can be measured by a Geiger-Muller counter. This I^{131} is regarded as labeling all iodide present in the body tissues.[25] The level of radioactive iodine (RAI) in the body constituents can be used to estimate thyroid function.

Hertz, Roberts, and Evans[18] reported in 1938 that radioactive iodine was selectively taken up by the thyroid gland. Hamilton and Soley[14] reported in 1939 that there was a correlation between the thyroid accumulation or the urinary excretion of ingested RAI and thyroid function. Since that time a great many different thyroid function tests based upon measurements of RAI have been devised. The methods of measurement may be divided into those based upon the determination of I^{131} in excreted urine, in the blood, directly over the in vivo thyroid gland and some combination of these.

Keating et al[24, 25] measured the amount of RAI in excreted urine after various definite intervals of time and expressed this value in per cent of administered dose. They established urinary excretion curves by plotting this value against time. By analysis of these curves[25] they estimated various measurements of iodine physiology and correlated them with clinical states. The most valid measurement so determined was the thyroid iodine accumulation rate. The following values were obtained: 14 euthyroid patients— 3-4 per cent per hour + 2-3 per cent per hour (this group consisted of four normal and ten patients with thyroid tumors judged physiologically euthyroid); six myxedema—1.0 per cent per hour + 0.6 per cent per hour; 16 exopthalmic goiter—25.5 per cent per hour + 8.0 per cent per hour.

The thyroid iodine accumulation rate is especially useful in evaluating borderline cases. It is more specific in questionable hyperthyroidism than in doubtful myxedema. The test corrects for any disturbance due to renal function or to the presence of edema. It has the practical disadvantage of requiring the collection of carefully timed and measured amounts of urine and the I^{131} determination of each sample.

Twenty-four hour total urinary excretion was measured by Roswit and co-workers.[52] Of 34 hyperthyroids studied only two fell in the euthyroid range of 40 per cent to 80 per cent excretion. This is a diagnostic accuracy of 94 per cent. In 100 euthyroids all fell within the normal range.

This test is useful when no renal dysfunction is present. It is less expensive and less difficult to determine than thyroid accumulation rate. However, it does not adequately evaluate cases of disturbance in the rate of iodine uptake in the first hours following ingestion of I^{131}. Seed et al[55] found the 24 hour urinary excretion was always high in renal exophthalmus but that it did not correlate directly with severity.

Thyroid function has been estimated by measurements of the radioactivity of blood samples.[38, 55] This was first used to circumvent the difficulty in the chemical determination of the iodine. The advent of the new microchemical techniques for iodine measurement eliminates this necessity.

The determination of the conversion rate of plasma I^{131} to protein bound I^{131} is supposedly an actual measurement of the rate of conversion by the gland.[15] Seed and co-workers[55] believed this to be a very accurate thyroid function test. They found it especially useful in the diagnosis of obscure cases of hyperthyroidism.

The most direct RAI test is the in vivo measurement of iodine accumulation with the Geiger-Muller counter over the thyroid gland. The usual time interval is 24 hours following the ingestion of RAI. Roswit and co-workers[52] found 100 per cent of 37 hyperthyroid patients to have an uptake over 50 per cent while only one euthyroid had such an uptake. Ninety-seven per cent of 100 euthyroids were within the range of 10 per cent to 50 per cent uptake. Three of four hypothyroids were below 10 per cent.

Kriss[27] suggested that intravenous administration of I^{131} followed by measurement of uptake over the thyroid in one hour gave a better correlation with clinical symptoms and resulted in less overlap between various thyroid states than the usual 24 hour method. Costa,[8] however, believed that a reading at one hour should be followed by one at 24 hours for greater diagnostic accuracy.

The determination of accumulation rate by in vivo measurements has been suggested as the most accurate expression of thyroid function obtainable by these methods.[1, 23] The increase in sensitivity and specificity has not, however, been great enough to justify their general usage.

The in vivo measurement over the thyroid gland is the most simply performed of the RAI tests. It is more accurate in evaluating reduced activity than in

cases of hyperactivity.[52, 66] It requires no patient cooperation.

False values are obtained in cases of disturbed renal function and in edema as these factors influence blood levels of iodine which alter thyroid iodine uptake. The accuracy of the direct measurement depends upon determination of the exact anatomical position of the thyroid gland. The results have been misleading in substernal thyroids and in cases of discreet areas of disturbed activity. More accurate methods of making this determination are being developed and they tend to eliminate this error.[12, 47]

Combinations of the RAI measurements have been used to determine specific parameters of thyroid function. Thyroidal iodide clearance can be expressed in the same way as renal clearance values, i.e., the volume of plasma cleared of its iodide content per minute by the thyroid. Myant and his group[41] made this determination by measurements of in vivo thyroid uptake, I^{131} in excreted urine, and protein bound I^{131} in blood plasma. This test was repeated twice to obtain the final value. They found a substantial plasma rate of 16 ml/min. and a hyperthyroid rate of 486 ml/min.

Keating and Albert[23] state that there is evidence that this is the best quantitative measurement of thyroidal iodine accumulation. It is a direct determination of the accumulating activity of the gland. It is independent of renal function. This is the only RAI test taking into account the volume distribution of iodine.[23] Its greatest usefulness is in the elimination of overlap in euthyroid-hyperthyroid borderline cases. Unfortunately, the complexity and expense of the test make it impractical for routine use.

A more recently developed and much simpler test has been reported by Berson et al.[4] They present evidence to support their contention that this test measures the same function as the thyroidal iodide clearance test of Myant. It is determined in a single 35 minute sitting from the assay of radioactivity of the in vivo thyroid gland and of a single urine specimen. The lowest thyroidal clearance rate in hyperthyroidism was almost twice the highest rate obtained in euthyroidism. This test has yet to be evaluated by use in other clinics. If its sensitivity and specificity in borderline cases is demonstrated, then these attributes combined with its simplicity will perhaps make it the most useful of the RAI tests.

Protein Bound Iodine

The biochemical study of the thyroid gland has been chiefly concerned with iodine determinations.[46] The greatest obstruction encountered in this work has been the technical difficulty in measuring the small amounts of iodine biologically present. A second has been a lack of knowledge as to which blood constituent should be measured.

It has been demonstrated in recent years that the largest portion of the circulating thyroid hormone was indistinguishable from thyroxin in many physical, chemical, and biological characteristics.[13, 26, 29, 50, 61, 62, 63] This hormone has been shown to occur in the plasma in loose combination with the plasma protein.[3, 13, 29, 53, 60, 62, 63] This is the main calorigenic hormone in the body. Change in the concentration of the protein bound iodine (PBI) in the plasma is chiefly a reflection of the alteration of the amount of this hormone present.[3, 53]

The development of practical micromethods to measure the iodine content of the precipitated protein bound iodine of the plasma[2, 37] has led to the general use of this test. The PBI level is expressed in gamma per cent (micrograms per 100 cc.).

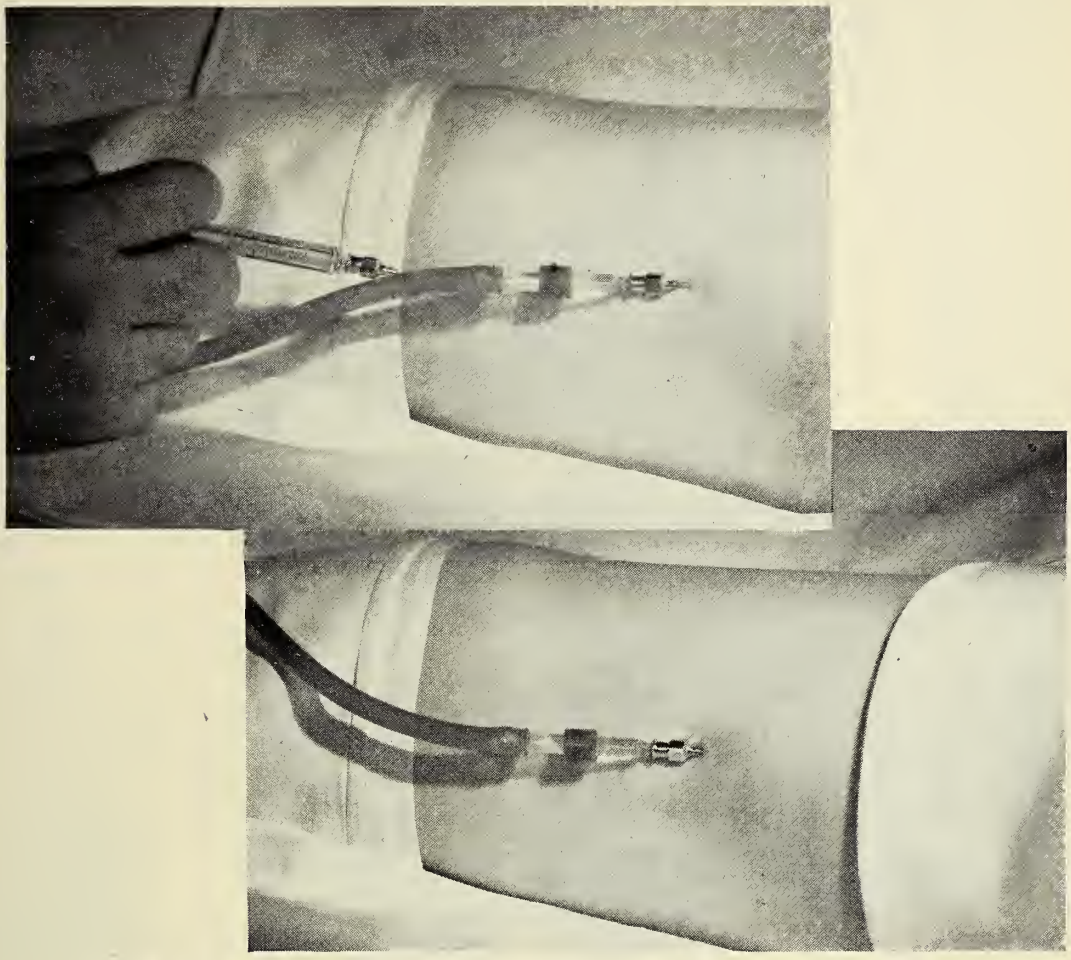
Bassett et al[3] showed in 1941 that the level of PBI was relatively low in myxedema and high in hyperthyroidism. Lowenstein and co-workers[31] demonstrated in 1944 that there was a statistical correlation between PBI and BMR, and Swenson and Curtis[58] found a similar correlation. Lowenstein and co-workers[32] showed in 1945 that in hyperthyroidism the PBI reverts to normal following treatment with thiouracil.

Salter and co-workers[54] determined the PBI in 100 clinical cases including all three thyroid states. They evaluated the cases as to final clinical diagnosis, BMR values, and PBI levels. They divided the cases into two groups depending upon whether the clinical diagnosis was compatible with the BMR. They found that 71 per cent had a clinical diagnosis compatible with the BMR, and of these only one was incompatible with the PBI. The final clinical diagnosis was incompatible with the BMR in 29 per cent of cases and one of these was incompatible with the PBI.

In 1950 Starr and others[56] reported distributions shown in the table below. They stress the relatively wide range in normal individuals and point out the importance of carefully establishing the upper and lower limits of normal.

Tucker and Keys[64] established a range for normal young men of 3.1 to 11.0 gamma per cent and

Euthyroid	90 %	above	4.45	gamma	%	90 %	below	6.65	gamma	%		
	99 %	above	3.77	"	%	99 %	"	7.84	"	%		
Hyperthyroid	99.4%	"	7.84	"	%							
Euthyroid	1 %	"	7.84	"	%							
Hypothyroid						87.1%	"	3.77	"	%		
Euthyroid						1 %	"	3.77	"	%		



Vein-Sparing

Parenteral Alimentation Facilitated with ALIDASE

For either rapid or slow administration of fluids, the use of ALIDASE®—highly purified hyaluronidase—places hypodermoclysis on a practical basis. When Alidase is added to the first few cubic centimeters of fluid, absorption from subcutaneous tissue is greatly facilitated. Injection is thus permitted at a convenient site with little or no swelling or discomfort, without arm boards and without many of the difficulties encountered with intravenous injection.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

SEARLE

RESEARCH IN THE SERVICE OF MEDICINE

in middle aged men from 2.6 to 11.1 gamma per cent. Riggs[48] obtained a euthyroid range of 3.5 to 7.0 gamma per cent. The PBI has been shown to be elevated in hyperthyroidism and depressed in hypothyroidism by many investigators.[11, 15, 25, 49, 59]

The findings of PBI levels in non-thyroid disease and in various physiological states need to be determined so as to evaluate the tests when those conditions are known to be present. This work is only begun and much additional information will be forthcoming on this problem.

The PBI is elevated in pregnancy.[17] It was found to rise above six gamma per cent in the first 16 weeks. Man and others[34] found, if this level was not reached at the end of that time, that abortion was more apt to occur than otherwise. The administration of thyroxin accelerated the rise and seemed to diminish the tendency to abortion.

Kydd and Man[28] found the changes in PBI in liver disease to be explainable on the basis of the function of the liver in carrying on degradation of thyroxin. In uncomplicated obstructive jaundice there was a normal value because the parenchyma was sufficient to carry on degradation. In early hepatitis there was elevation of the PBI due to parenchymal damage with lowering of value as regeneration proceeded. In cirrhosis the value was normal. This may have been related to the disturbance in serum albumin.

Essentially normal limits have been found in hypertensive heart disease and in cardiac failure, even though the BMR was elevated above normal.[11, 48]

Riggs[48] reported isolated cases of leukemia, multiple myeloma, Hodgkin's disease, menopause, and anxiety neurosis in all of which the BMR was elevated with the PBI within the normal range.

The PBI was low in the nephrotic syndrome reported by Peters and Man[44] and was apparently associated with a deficiency of serum albumin.

Perlmutter and Riggs[43] found that the thyroid accumulation rate of RAI decreased with aging while the PBI remained elevated. This was in contrast to the usual direct correlation between thyroidal accumulation rate and PBI. They postulated that it might be on the basis of decreased peripheral utilization.

Conclusion

The BMR has the inherent disadvantage of not being able to distinguish thyroid from non-thyroid causes of disturbed metabolism. A group of non-thyroid disease states causing altered metabolism has been previously listed. These disease entities must be considered when evaluating a BMR.

Keating and co-workers[24] have pointed out that the BMR has been criticized on the following grounds: (1) it is an indirect measure of thyroid function; (2) accuracy depends upon patient cooperation; (3) the basal rate is difficult to approach; (4) technical difficulties are great; (5) there is lack of sensitivity and specificity. This group maintains, however, that a careful clinician will take these factors into consideration when evaluating the BMR and be able to arrive at a valid judgment.

A further difficulty in evaluating an individual BMR is to be found in the matter of standard values. Every clinic doing careful work establishes its own standards and these vary from place to place.[1, 39, 46, 54, 58] Standards set up in one geographical area cannot be used in a different region. It is recognized that patients have different normal BMR's so that a statistically low reading may be high for a particular individual.[6]

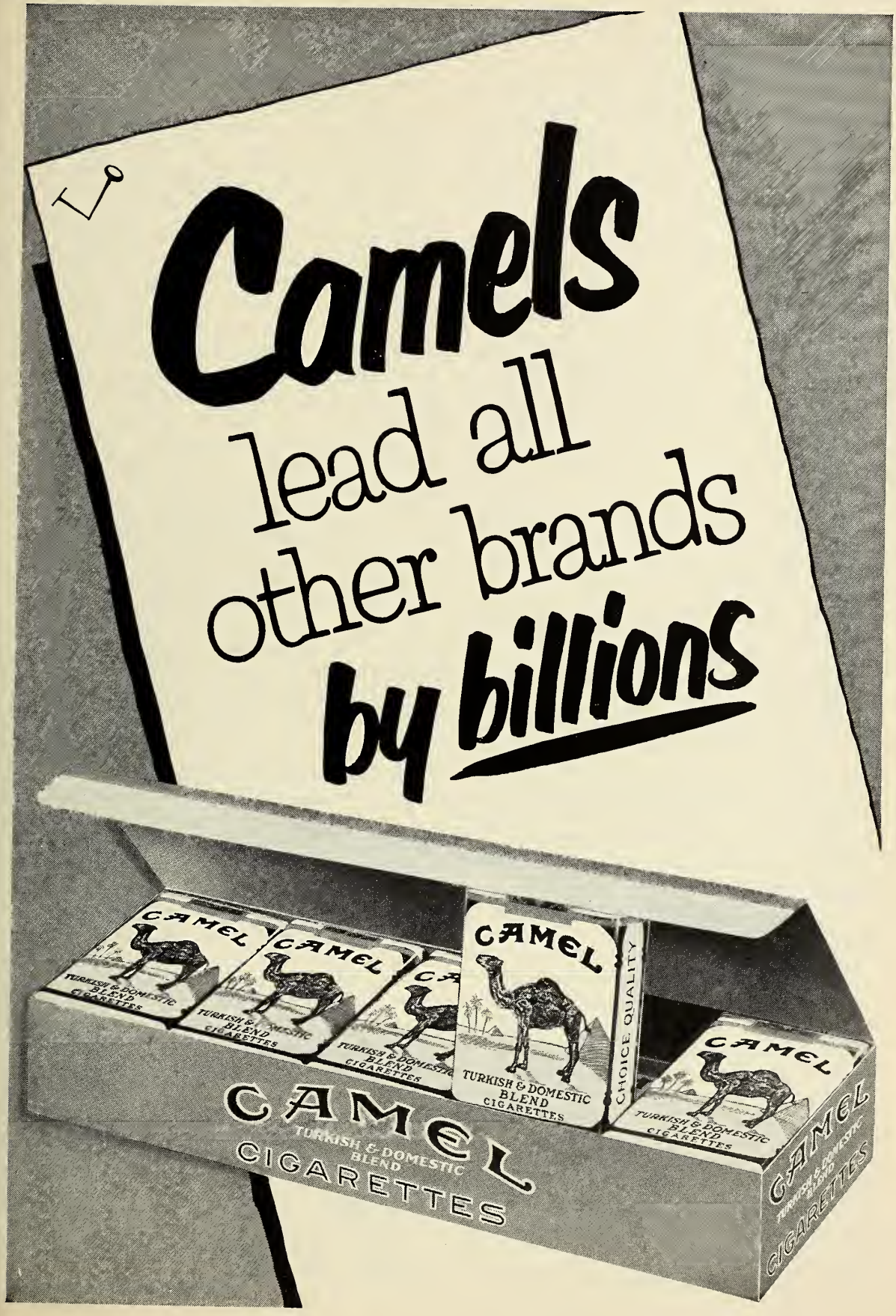
The previous criticisms indicate that the BMR must be exactly controlled and shrewdly interpreted. The standards cannot be interchanged and are limited to method, machine, operator, geographical locality, and the cooperation of the patient. When other causes of hypermetabolism or hypometabolism are eliminated, the altered BMR becomes strong presumptive evidence of thyroid dysfunction. When correlated with the observations of a careful clinician, it continues to have a place in the estimation of thyroid function. However, the BMR is of little assistance when the clinician needs help most in differential diagnosis.

In evaluating the blood cholesterol level Hurxthal realized the limited specificity and sensitivity. It has had its greatest usefulness when the limitations he and others have placed on it have been observed.[19, 20, 36] It may suggest the diagnosis of thyroid dysfunction in cases where the levels are strikingly high or low. It will occasionally aid in diagnosis where the BMR and the clinical picture are in doubt.

The ease of determination has caused this measurement to be used as a screening test. This should probably be abandoned because of the false sense of security which it gives.

Tests based upon measurements of radioactive iodine in suitable body constituents give results having a high correlation with thyroid states.[4, 15, 25, 41, 52, 55] These tests are especially useful in the differentiation of thyroid from non-thyroid metabolic disturbances.[52]

The RAI tests measure the trapping mechanism of the thyroid gland. They do not measure the end products of thyroid activity and must be interpreted accordingly. They give results in test values which do not reflect thyroid state in endemic and sporadic


Camels
lead all
other brands
by billions
CAMEL
TURKISH & DOMESTIC BLEND CIGARETTES
CHOICE QUALITY
CAMEL
TURKISH & DOMESTIC BLEND
CIGARETTES

cretinism, adenomatous goiter, toxic nodular goiter, and following thyroid medication.[15, 24, 55]

The availability of RAI tests is limited by technical difficulties, requirement for special equipment, and limitation of the supply of radioactive materials. The tests have been criticized because a radioactive element is introduced into the body. However, there is evidence that the amount used in the test will be innocuous.[45, 52] Disturbed physiology resulting from the introduction of iodine has been suggested as a source of error. The amounts of I^{131} used as tracers are so small that this criticism is not justified.

Some of the RAI tests, because of their simplicity and economy, are useful for screening purposes and in the diagnosis of definite thyroid states. Of these the 24 hour direct in vivo measurement of radioactivity in the thyroid gland is the most commonly used.* The 24 hour total urinary excretion test is the most frequently used measurement of urinary radioactivity. These tests have a correlation with thyroid state exceeding 90 per cent.[52]

The more sensitive and specific tests are expensive and time consuming. The ratio of plasma I^{131} to PBI^{131} is an expression of the conversion rate of the thyroid gland.[15] Thyroidal iodide clearance rate is the most accurate measurement available for determining the iodine trapping mechanism of the thyroid gland.[23] Simplification of this test[4] may render it practical without sacrificing sensitivity and specificity. These and other highly specific tests are justified in borderline cases and in difficult differential diagnoses.

The PBI test is a direct measurement of the calorigenic hormone produced by the thyroid gland. The plasma level is considered to depend directly upon the activity of the thyroid gland.[49] This is a truly physiological test as it measures a substance normally present in the plasma.

The greatest usefulness of the PBI in thyroid disease is to distinguish thyroid from non-thyroid disturbances of metabolism.[7, 15, 22, 57, 58] Salter[54] states that in a large clinic about one-third of the cases will present a clinical picture incompatible with the BMR and that the PBI is nearly always confirmatory of the clinical impression. He finds it especially useful in exopthalmic goiter without hyperthyroidism.

Rapport and Curtis[66] found the PBI of considerable aid in the differential diagnosis of neurosis from hyperthyroidism. Curtis and Swenson[58] concluded that the PBI was an aid in the recognition of incipient hyperthyroidism and in the differentiation of non-thyroid states with an increased BMR from true or incipient hyperthyroidism. Man[34] believed the probability of abortion could be foretold if the PBI failed to rise sufficiently.

The chief disadvantage of the PBI as a routine test is the technical difficulty of the procedure. As experience increases, this will doubtless be overcome and a minimum of human error will be involved.

The PBI test is rendered useless by the diagnostic or therapeutic administration of iodine. Starr et al[56] have estimated the duration of false elevation of the PBI after the use of iodine containing compounds to be one week following cessation of administration of Lugol's solution and to be four weeks following urography, three months following cholecystography, nine months after bronchography and three years or longer after myelography.

An inherent weakness of the PBI test would be demonstrated by proof that there are cases of diminished peripheral utilization of thyroxin. Perlmutter and Riggs[43] have evidence suggesting that this mechanism may work in old age.

A practical advantage of the PBI test is that the blood sample may be sent to the testing center. In difficult diagnostic cases this may be useful to the practitioner who does not live near the testing laboratory. The test requires a 10 cc. sample of serum, prepared by centrifuging a larger quantity of clotted blood. Because only micrograms of iodine are measured, great care must be exercised in using syringes, needle, tubes, and antiseptic containing *no* traces of iodine. To insure this, a new syringe and needle should be used to draw the blood and only rubbing alcohol used as the skin antiseptic.

*This is the test used at the University of Kansas Medical Center.

Summary

The four commonly used thyroid function tests have been discussed. Correlations between test results and thyroid states are given. Conditions where various tests are most useful or are misleading are suggested. A criticism and evaluation of the separate tests is presented.

The function tests should be complementary to rather than competitive with each other. It is always necessary to evaluate the test results with regard to the clinical state. There is no test which automatically answers the question as to whether thyroid disease is present. However, at this time there is probably no case which a wise clinician, with the battery of tests now available, could not solve.

Bibliography

1. Astwood, E. B.; Stanley, M. M.: Tr. Amer. Assoc. Study Goiter, 1947, pp. 216.
2. Barker, S. B.; Humphrey, M. J.: J. Clin. Invest., 30:55 Jan. 1951.
3. Bassett, A. M.; Coons, A. H.; Salter, W. T.: Am. J. Med. Sci., 202:511 Oct. 1951.
4. Berson, S. A.; Yalow, R. S.; Sorrentino, J., and Roswit, B..: J. Clin. Invest., 31:141 Feb. 1952.
5. Billings: Amer. J. Med. Sci., 221:495 May 1951.
6. Chesky, V. E.; Schmidt, C. R.: Tr. Amer. Assoc. Study Goiter, 1947 p. 234.

attain the goal in acute urinary tract infections–

quickly...



The immediate goal in pyuria, regardless of etiology, is to render the urine sterile. SULAMYD,® (sulfacetamide—Schering) is a highly soluble sulfonamide, rapidly cleared from the blood stream and highly bacteriostatic for most common urinary tract pathogens. SULAMYD quickly controls infections with negligible risk of renal complications because of its ready solubility in urine.

SULAMYD



Schering CORPORATION
BLOOMFIELD, N. J.

IN CANADA: SCHERING CORPORATION, LTD., MONTREAL

SULAMYD

SCHERING

7. Connor, A. C.; Curtis, G. M.; Swenson, R. E.: J. Clin. Endocrinol., 9:1185 Nov. 1949.
8. Costa, A.: J. Clin. End. & Met., 12:135 Jan. 1952.
9. Curtis, G. M.; Fertman, M. B.: Arch. Surg., 54:541 May 1947.
10. Curtis, G. M.; Swensen, R. E.: Ann. Surg., 128-443 Sept. 1948.
11. Davison, R. A.; Zollinger, R. W.; Curtis, G. M.: J. Lab. & Clin. Med., 27:643 Feb. 1942.
12. Fields, T.; LeRoy, G. V.: Radiology, 58:57 Jan. 1952.
13. Gley, C.; Bourcet, P.: Compt. Ztschr. Acad. d. Sci., 130: 1721 1900 quoted by Salter, W. T. in Am. J. Med. Sci., 202-517, 1941.
14. Hamilton, J G.; Soley, M. H.: Amer. J. Physil., 127:557 Oct. 1939.
15. Hardy, J. D.; Riegel, C.: Amer. J. Med. Sci., 221:359 April 1951.
16. Harrison, T. R. Principles of Internal Medicine, The Blakiston Company, Philadelphia, Toronto, 1950.
17. Heineman, J.; Johnson, C. E.; Man, E. B., J. Clin. Invest., 27:91 1948.
18. Hertz, S.; Roberts, A.; Evans, R. D.: Proc. Soc. Exper. Biol. and Med., 1938, p. 510.
19. Hurxthal, L. M.: Arch. Int. Med., 53:762 May 1934.
20. Hurxthal, L. M.: Arch. Int. Med. 51:22 Jan. 1933.
21. Jaffe, H. L.; Ottoman, R. E.: J.A.M.A., 143:515 1950.
22. Johnson, M. W.; Squires, A. H.; Farquharson, R. E.: Ann. Int. Med., 35:1008 Nov. 1951.
23. Keating, F. R., Jr.; Albert, A.: Recent Prog. in Hormone Research, 4:429 1949.
24. Keating, F. R., Jr.; Haines, S. F.; Power, M. H.; Williams, M. M. D.: J. Clin. Endocrinol., 10:1425 Nov. 1950.
25. Keating, F. R., Jr.; Power, M. H.; Berkson, J.; Haines, S. F.: J. Clin. Invest., 26:1138 Nov. 1947.
26. Kendall, E. C.: Trans. Assoc. Amer. Physicians, 30:420.
27. Kriss, J. P.: J. Clin. Endocrin., 11:289 March 1951.
28. Kydd, D. M.; Man, E. B.: J. Clin. Invest., 30:874 Aug. 1951.
29. Leland, J. P.; Foster, G. L.: J. Biol. Chem., 95:165 1932.
30. Lerman, J.: Med. Clin. N. Amer., Sept. 1949, p. 1249.
31. Lowenstein, B. E.; Bruger, M.; Hinton, J. W.: J. Clin. Endocrin., 4:268 June 1944.
32. Lowenstein, B. E.; Bruger, M.; Hinton, J. W.; Lough, W. G.: J. Clin. Endocrin., 5:181 1945.
33. Man, E. B.; Culotta, C. S.; Siegfried, D. A.; Stilson, C.: J. Pediatrics, 31:154 Aug. 1947.
34. Man, E. B.; Heineman, M.; Johnson, C. L.; Leary, D. C.; Peters, J P.: J. Clin. Invest., 30:137.
35. Man, E. B.; Smirnow, A. E.; Gildea, E. F.; Peters, J. P.: J. Clin. Invest., 21:773 Nov. 1942.
36. Mason, R. L.; Hunt, J. M.; Hurxthal, L. M.: N. Eng. J. Med., 203:1273 Dec. 25, 1930.
37. McClendon, J. F.: Remington, R. E.; von Kolnitz, J.; Rufe, R.: J. Amer. Chem. Soc., 52:541 Feb. 1930.
38. McConahey, Wm. M.; Keating, F. R., Jr.; Power, M. H.: Tr. Amer. Goiter Assoc., 1948, p. 69.
39. McCullagh, E. P.; Schneider, R. W.: Surg. Clin. N. Amer.. 21:1241 Oct. 1941.
40. McGavack, T. H.: The Thyroid, C. V. Mosby Co., St. Louis, 1951.
41. Myant, N. B.; Pochin, E. E.; Goldie, E. A. G.: Clin. Sci., 8:109 1949.
42. Noehern, A. H.: West. J. Surg., 48:445 July 1940.
43. Perlmutter, M.; Riggs, D. S.: J. Clin. Endocrin., 9:430 May 1949.
44. Peters, J. B.; Man, E. B.: J. Clin. Invest., 29:1 Jan. 1950.
45. Quimby, E. H.; Werner, S. C.: J.A.M.A., 140:1046 July 23, 1949.
46. Rapport, R. L.; Curtis, G. M.: J. Clin. Endocrin., 10:735 July 1950.
47. Reid, A. F.; Sorenson, J. A.: Radiology, 58:390 March 1952.
48. Riggs, D. S.: Tr. Amer. Assoc. Study Goiter, 1947, p. 137.
49. Riggs, D. S.; Lavietes, D. H.; Man, E. B.: J. Biol. Chem., 143:363 1942.
50. Rosenberg, I. N.: J. Clin. Invest., 30:1 1951.
51 Rosenkrantz, J. A.; Marshall: Arch. Int. Med., 80:81 1947.
52. Roswit, B.; Rosenkrantz, J. A.; Sorrentina, J.; Yalow, R.; Berlin, I.: Amer. J. Med. Sci., 223:229 March 1952.
53. Salter, W. T.: West J. Surg., 55:15 Jan. 1947.
54. Salter, W. T.; Bassett, A. M.; Sappington, T. S.: Am. J. Med. Sci., 202:527 Oct. 1941.
55. Seed, L.; Jaffe, B.; Baumeister, C.: J. Clin. Endocrin., 11: 1143 1951.
56. Starr, P.; Petit, D. W.; Chaney, A. L.; Rollman, H.; Aiken, J. B.; Jamieson, B.; Kling, I.: J. Clin. Endocrin., 10:1237 Oct. 1950.
57. Swenson, R. E.; Curtis, G. M.: Trans. Amer. Assoc. Study Goiter, 1947, p. 145.
58. Swenson, R. E.; Curtis, G. M.: Amer. Pract., 2:671 June 1948.
59. Swenson, R. E.; Curtis, G. M.: J. Clin. Endocrin., 8:934 Nov. 1948.
60. Taurog, A.; Chakoff, I. L.: J. Biol. Chem., 165:217 1946.
61. Taurog, A.; Chaikoff, I. L.: J. Biol. Chem., 171:439 Nov. 1947.
62. Taurog, A.: Chaikoff, I. L.: J. Biol. Chem., 176:639 Nov. 1948.
63. Trevorrow, V.: J. Biol. Chem., 127:737 March 1939.
64. Tucker, R. G.; Keys, A.: J. Clin. Invest., 30:869 Aug. 1951.
65. VanderLaan, W. P.; VanderLaan, J. E.: West J. Surg., 55: 10.
66. Werner, S. C.; Hamilton, J. B.; Leifer, E.; Goodwin, L. D.: J. Clin. Endocrin., 10:1043 Sept. 1950.
67. Wolff, J.; Chaikoff, I. L.: Endocrinology, 42:468 June 1948.

Records for Nursing Homes

A new system of medical records for persons residing in adult boarding and nursing homes has been devised by the Kansas State Department of Social Welfare, in accordance with provisions of the licensing law passed by the 1951 session of the Kansas legislature. The entire program under which such establishments are licensed is designed to improve health conditions in the homes.

Local welfare directors have received copies of the records for distribution to operators of the homes. It is requested that general information be obtained as soon as possible, that health examinations of persons working in the homes be completed within 90 days, and that the report of the physical examination of residents be completed by January 1, 1953.

The attending physician's role in the improvement of care in these homes includes the recording of health information, which will serve as a guide for operators of the homes. A record for each resident must be kept in the home, and a copy or "transfer note" must accompany the person when he changes homes. Nursing notes will include information on medicines and treatments administered and observations on the patient's condition and behavior.

Spaces are provided on each record for the physician's comments and orders. Suggestions or recommendations for future improvement in the design of the records will be appreciated by the Department of Social Welfare.

The Army Medical Service celebrated its 177th anniversary on July 27, proud in the knowledge that its efforts have created the healthiest combat force in history. From the tiny band of doctors and assistants organized as a medical department by the Continental Congress in 1775 at the behest of General George Washington, the service has grown to include 90,000 physicians, nurses, medical specialists and assistants.

By the start of World War I, the service had 1,385 commissioned officers and 6,619 enlisted men. Before the war was over, the organization had expanded to 30,591 medical officers, 4,620 dental officers, 21,480 nurses and additional supplementary personnel.

World War II brought about an unparalleled expansion, and the professional corps was increased to include 135,000 officers.

The 94th annual session of the Kansas Medical Society will be held at Wichita, May 4-7, 1953.

"PREMARIN"®

Highly effective • Well tolerated • Imparts a feeling of well-being

"PREMARIN"

Most menopausal patients
experience striking relief
of symptoms with "Premarin."

"PREMARIN"

Estrogenic Substances (water-soluble)

"PREMARIN"

also known as Conjugated Estrogens (equine)

"PREMARIN"

5202 AYERST, McKENNA & HARRISON Limited • New York, N. Y. • Montreal, Canada

Ayerst®

BOOK REVIEWS

This Place Called Kansas. By Charles C. Howes. Published by University of Oklahoma Press, Norman, Oklahoma. 236 pages. Price $3.75.

Did you know that the word Kansas has been spelled 55 different ways and that the accepted spelling is probably not correct? Did you know that silk manufacture at one time promised to become a major industry in this state? Have you ever heard of the "wind wagon" that sailed under airpower from Oskaloosa to within 50 miles of Denver where it was wrecked? Did you know that Kansas has many natural bridges, one of them 50 feet long; that the sunflower is not indigenous to this state; that although there is salt enough under Kansas to cover the entire state to a depth of 37 feet, early settlers, thinking there was no salt here, brought their own?

That only begins to describe *This Place Called Kansas*. It is a whimsy of historical fact, a loosely woven collection of wonderful anecdotes, forgotten incidents out of the past, data on geography, industry, culture, politics, almost anything one might think of. There are stories of how the railroads came to Kansas, accounts of Civil War activities, land promotion schemes, the bitter county seat struggles, the legend of the Jayhawk, exploits of the prohibitionists, the grasshopper plague.

In the proper sense this is not a history at all, nor a geography, nor even a story. It is instead a hundred stories, a kaleidoscopic view of this place called Kansas, its history, its people, and its legends. It is a book that will be opened again and again at brief odd moments for relaxation and complete enjoyment.

Many anecdotes concern the newspapers of Kansas with fascinating quotations to illustrate the independence and the color of various journalists from the earliest day to the present. And for reason enough, for this is actually a compilation of the notes of Cecil Howes, Kansas correspondent for the Kansas City Star for 50 years. They are here recorded by his son. The many physicians who knew "Cece" and heard his inimitable stories will take an especial interest in this book.

This Place Called Kansas is the preservation of the stories Cece Howes loved to tell. It reflects the flavor and the integrity and the interest in life that were his. It races, as he did, from one scene to the next as they came to mind. It deals proudly with the heroism, the ingenuity of the Kansas pioneer, and wistfully with his foibles. It records the kind of history that is not in history books, the kind of geography not elsewhere printed, a story of Kansas that would soon have been forgotten. And most of all it will awaken in the reader a new sense of the glory that rests sternly at times but often ever so gracefully upon this place called Kansas.—*O.E.E.*

* * *

The Principles and Methods of Physical Diagnosis. By Simon S. Leopold. Published by W. B. Saunders Company, Philadelphia. 430 pages, 390 illustrations with 19 color plates. Price $7.50.

This well-organized textbook, written with the avowed intention of supplying more of the underlying physical principles of examination, succeeds remarkably well. Unique is the chapter on Acoustic Principles of Sounds from the Thorax written by S. Reid Warren, Jr., Sc. D. in E. E. Unusually helpful are the cross- and the longitudinal-section illustrations, the chapter on examination of the breasts, the diagrammatic figures (94 through 153) on examination of the muscles and joints, the chapter on gynecologic examination, and the longer than usual section on examination of the anus, rectum and male genitalia.

The major shortcoming of this book is the brevity almost to the point of omission of history taking, its significance and discussion. The author defends this in the preface by stating, "It is still true that at the beginning of his sophomore year, the medical student knows almost nothing about the symptoms of disease and its physical manifestations. He is therefore incapable of taking a medical history, for to do so implies that he has knowledge which he cannot possibly have acquired."

With this reservation, it can fairly be said that this textbook is a particularly worthy addition to the field.—*G.R.S.*

* * *

Surgical Forum of the 1951 Clinical Congress of the American College of Surgeons. Published by W. B. Saunders Company, Philadelphia. 667 pages, 290 figures. Price $10.

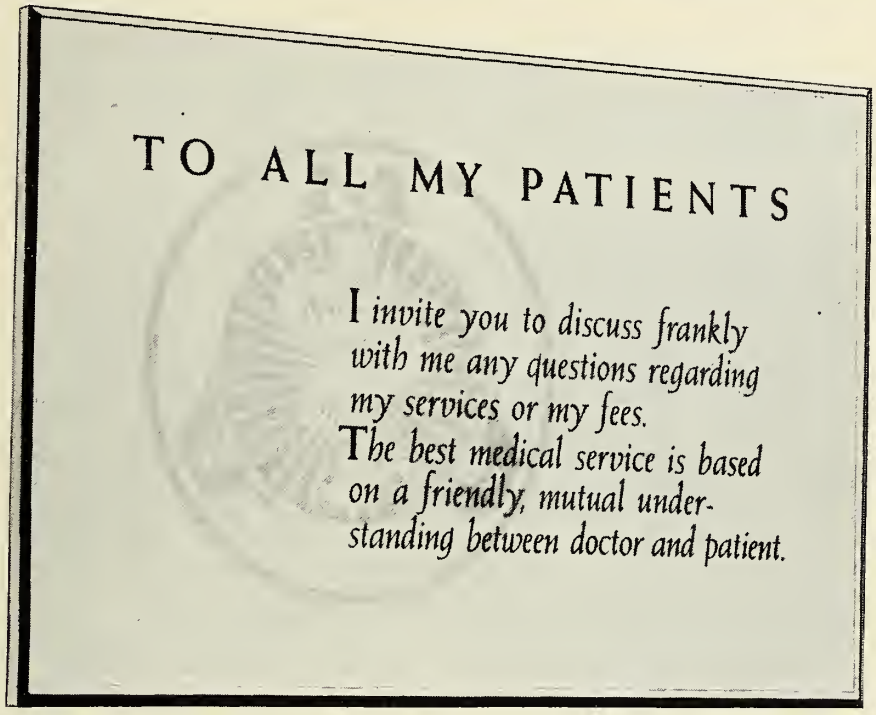
Consisting of those papers presented at the Surgical Forum of the American College of Surgeons in November, 1951, this collection surveys the most recent progress in all fields of surgery, particularly the experimental aspects. It is composed of 116 concise discussions, each by different authors, as well as numerous abstracts. These cover the general fields of the lungs and esophagus, the stomach and spleen, etc. as listed in the "Contents."

As a record of the development and a source for the documentation of contemporary surgery, it is unrivalled. It cannot be too highly recommended for anyone interested in surgery, whether he be the earnest student seeking to elicit new information, as yet unpublished elsewhere, or the accomplished surgeon desiring to gain orientation in the many brilliant advances along present-day frontiers in surgery.

announcing

A NEW PUBLIC RELATIONS AID

. . . to boost your PR rating



NEW OFFICE PLAQUE

- ✓ **dark brown lettering on buff**
- ✓ **harmonizes with any office decor**
- ✓ **measures 11½ by 7¾ inches**
- ✓ **for desk or wall**
- ✓ **laminated plastic finish**

As you know, a physician's best public relations is carried on right in his own office. Here the physician gets acquainted with his patients . . . gives them a chance to talk over problems . . . builds a feeling of mutual understanding between patient and doctor.

Your American Medical Association has designed an attractive new office plaque to be displayed prominently on an office desk or wall. This is a graphic invitation to patients to talk over professional services and fees. Patients like to ask questions, but often are hesitant to do so. This plaque will open the door to better relations with your patients. Order one today.

PRICE
$1
POSTPAID

Order Department
AMERICAN MEDICAL ASSOCIATION
535 North Dearborn Street
Chicago 10, Illinois

This is a stimulating book with a pleasing format. It will constitute a valuable addition to any medical library.—*C.F.K.*

* * *

Culdoscopy—A New Technic in Gynecologic and Obstetric Diagnosis. By Albert Decker. Published by W. B. Saunders Company, Philadelphia. 148 pages, 50 figures. Price $3.50.

This book, fifth in American Monogram Series, represents the knowledge gained by the author through 15 years of experience with celioscopy. Obstetricians and gynecologists contemplating the use of the culdoscope and those already using this instrument will find the discussions and detailed descriptions of the technique, including special procedures used, invaluable.

Included in the chapter on technique are the author's own contributions to the positioning of the patient and table, reasons for failure, and type of anesthesia best suited for this procedure. Pictures and descriptions of the instrument used are given. The author points out the value of this procedure not only in diagnosing pelvic disease but also in sterility therapy. Indications and contraindications for its use, with a discussion of each, are included. Before giving the detailed technique of culdoscopy, the author discusses its history and development, the anatomy of the vagina and the instrument used in its care.

A chapter is devoted to each of the following topics: diagnosis of ectopic pregnancy, management of sterility with culdoscopy, culdoscopy associated with uterotubal insufflation, pneumoperitoneum, diagnosis of endometriosis, and culdoscopy observation of ovulation and ovum transfer.

The author with this book has filled a definite need in medical literature. Every obstetrician and gynecologist will want this book for his own library. —*W.J.S.*

* * *

Functional Endocrinology from Birth through Adolescence. By Nathan B. Talbot, Edna H. Sobel, Janet W. McArthur and John D. Crawford. Published by Harvard University Press, Cambridge, Massachusetts. 638 pages, 243 figures, 59 tables.

"This book was written for practitioners, students and investigators of medicine and surgery who seek practical information concerning the actions of the endocrine systems in health and ordinary disease, and the management of endocrinopathies as they occur in young people." The authors have more than exceeded these broad objectives in this comprehensive, readable and beautiful volume that becomes the definitive work in its field.

A proper understanding of the endocrine forces becomes of greater importance to all of us, regardless of our special fields of interest, as the problems of this system are rapidly being solved and their relationship to disease in all branches of medicine is being understood. Each endocrine gland is presented in a clear and concise manner with excellent illustrations and charts covering the pertinent physiology, chemical and clinical aspects. References include the definitive work done on each gland and are invaluable for further study and direction. The chapter on the adrenal cortices is especially well done and integrates the basic physiology and clinical problems.

I am sure that every physician will enjoy this book as much as I have, and I can recommend it as the most satisfying medical volume I have read this year. It lends itself well to casual intermittent reading, which is about the only kind that most of us can enjoy, and brings together a vast amount of information not otherwise easily available.—*W.L.V.*

ABSTRACTS FROM CURRENT LITERATURE

Massively Bleeding Peptic Ulcer

The Physiological Mechanism for Death in Massively Bleeding Peptic Ulcer. By Harry H. Le Veen, A. G. Mulder and Frank Prokop, Surg., Gynec. & Obst., 94:433-442 (Apr.) 1952.

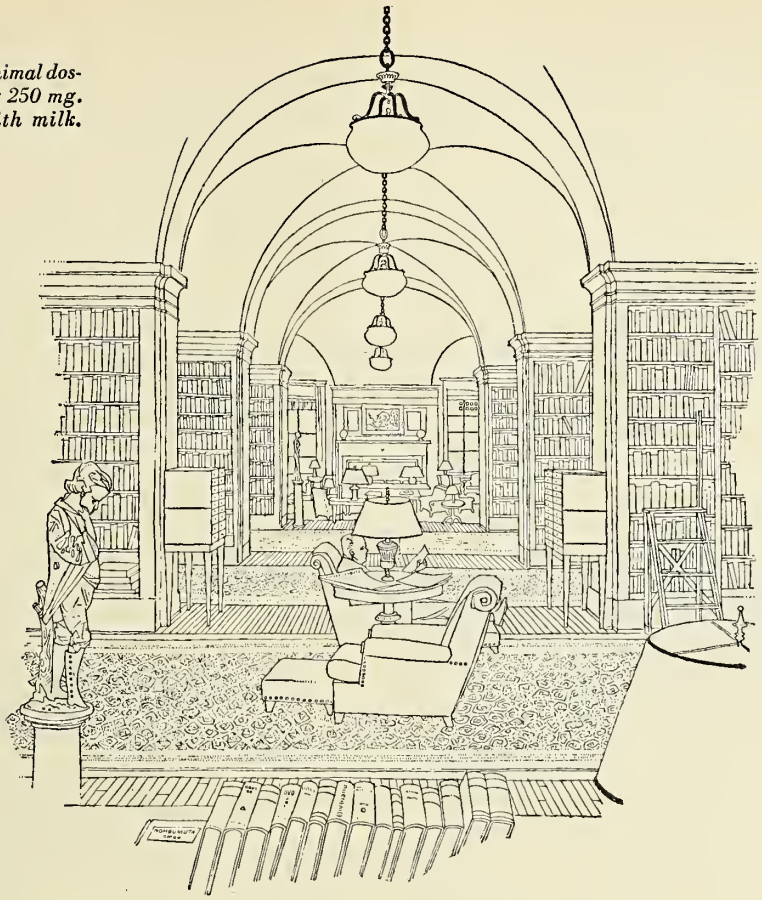
The authors make a new approach to the problem of bleeding peptic ulcer. They feel that blood loss, per se, is not usually responsible for the fatalities which occur, and it is their belief that a difference exists between the effects of hemorrhage of gastroduodenal origin and hemorrhage from other sites.

Bleeding experiments were performed on dogs. Pulse and blood pressure tracings were made from the hepatic and femoral arteries and blood flow was estimated at these sites. During rapid gastroduodenal artery hemorrhage, there is a striking reduction in the height of the systolic peak of the hepatic artery pressure as compared to the femoral artery pressure. There is a complete collapse of the diastolic phase in the hepatic artery, but a diastolic plateau is still apparent in the femoral artery tracing. The pulse pressure of the hepatic artery is nevertheless reduced because the systolic peaks are much lower.

When blood is replaced the femoral pressure rises much more rapidly than does that in the hepatic artery if bleeding is permitted to continue from the adjacent vessel.

The liver derives approximately 75 per cent of its blood supply from the portal vein, but the venous

New aureomycin minimal dosage for adults—four 250 mg. capsules daily, with milk.



Library, Union League Club, Philadelphia, Pa.

From among all antibiotics, Dermatologists often choose

AUREOMYCIN

Hydrochloride Crystalline

because

Aureomycin provides mild bacteriostasis in diseases of the skin.

Aureomycin has been found effective in pinta, yaws and many bacterial infections of the skin (furunculosis, impetigo, pyogenic dermatitides, sycosis vulgaris and tropical ulcer). It is at present considered preferable to administer the drug systemically in these conditions. Aureomycin is also useful in the control of contributing or secondary infections associated with many dermatoses.

Throughout the world, as in the United States, aureomycin is recognized as a broad-spectrum antibiotic of established effectiveness.

Capsules: 50 mg.—Bottles of 25 and 100; 250 mg.—Bottles of 16 and 100.
Ophthalmic: Vials of 25 mg. with dropper; solution prepared by adding 5 cc. distilled water.

LEDERLE LABORATORIES DIVISION AMERICAN CYANAMID COMPANY 30 Rockefeller Plaza, New York 20, N. Y.

blood in the portal vein contributes only about 50 per cent of the oxygen supply. The lack of oxygen in the portal blood is further accentuated by the slowing and stasis attendant upon hemorrhagic shock. The liver thus becomes largely dependent upon the hepatic arterial blood supply.

The experiments performed by the authors duplicate the consequences which arise from a massive hemorrhage originating in a peptic ulcer. Erosion into the gastroduodenal artery or one of its major branches would precipitously reduce the hepatic artery blood flow. Hepatic artery spasm further reduces its flow.

Another factor in hepatic hypoxia is that blood seemingly becomes more viscid at low flow rates, the usual axial distribution of cells at high pressures giving away to a tumbling, churning disorder. Furthermore, the liver offers increased resistance to flow of blood after hemorrhage. According to Blaylock, even moderate hemorrhage decreases the portal blood flow by more than half.

The authors condemn the practice of withholding transfusions in the pressure of hemorrhage in an effort to prevent further blood loss, and state that to willfully maintain low blood pressures in patients seems contraindicated and is equivalent to the control of hemorrhage by the maintenance of shock. The quantitative replacement of blood loss is necessary to bolster a reduced hepatic artery blood flow, and to prevent the low portal vein oxygen tensions which occur in shock as well as all of the general effects of reduced blood volume.

In summary, it would appear that massive hemorrhage from a duodenal ulcer will, if unchecked, reduce the blood flow through the hepatic artery selectively. This results in liver anoxia verging upon complete infarction. Early blood replacement and surgery (sub-total gastrectomy) are advised. General anesthesia, in the presence of liver hypoxia, has been demonstrated to produce extensive liver necrosis, and for this reason regional or spinal anesthesia is advocated.—*T.P.B.*

* * *

Myocardial Infarction

Sedimentation Rate in Myocardial Infarction. By Milton Plotz, Am. J. M. Sc., 224:1, 23-26 (July) 1952.

Sedimentation rate is elevated in almost all cases of major myocardial infarction. It is the last commonly employed sign of infarction to appear and the longest to persist.

The author's conclusions are based on observations in 100 cases of proved myocardial infarction. The Wintrobe method for determination of sedimentation rate was used in most instances.

Opinions differ as to the duration in time between onset of the infarction and beginning elevation of the sedimentation rate. In the author's series, all rates within 24 hours were normal. Of 22 rates between 24 hours and 48 hours, 13 were high. Of 43 cases between 48 and 72 hours, 40 were high. The maximum rate occurred between the third and seventh day, and in all cases, except those with secondary thromboses, it had started to decline by the eighth day.

The degree of elevation of the sedimentation rate had no relation to the severity of the illness. However, a persistence in elevation of the sedimentation rate correlated definitely with the clinical severity of symptoms. In this series, a majority of rates had returned to normal by the 21st day.

In 18 patients, the sedimentation rate remained elevated in spite of other evidence of recovery. Thirteen of these could be explained by extracardiac disease. In the remaining five, the rate remained rapid to the 35th day, gradually subsiding thereafter. Ambulation was permitted in these cases by the 42nd day.

In three cases, the rate remained normal in spite of massive infarction. Cardiac failure was present in each case.—*E.J.R.*

* * *

Agammaglobulinemia

Agammaglobinemia. By Ogden C. Burton, Pediat., 9:6, 722-727 (June) 1952.

The author reports an eight-year-old boy with complete absence of gammaglobulin with a normal total protein as determined by electrophoretic analysis. The child had repeated pneumococcal sepsis. He was unable to produce antibody for the pneumococcus with four antigenic substances used, and a positive Schick test persisted in spite of numerous attempts to reverse it with diphtheria toxoid. No antibody could be demonstrated following administration of thyroid vaccine in the usual manner, and his serum was negative for complement-fixing antibodies of epidemic parotitis after he experienced a typical clinical picture of the disease.

Gamma globulin could be demonstrated in his serum after concentrated immune human serum globulin was administered subcutaneously, and its gradual disappearance could be followed by electrophoretic analysis over a period of six weeks. Since he has been receiving 3.2 gms. of gamma globulin monthly, he has been free of pneumococcal sepsis for more than a year. In the previous four years he had clinical sepsis 19 times with positive blood cultures for pneumococci 10 times.—*D.R.D.*

* * *

Migraine in Children

Migraine in Children. By Morris I. Michael and

CLASSIFIED ADVERTISEMENTS

YOUNG DOCTOR WANTED to take over practice and equipment in town of 2,000. No competition. Eight miles from hospital. Write the Journal 8-52.

FOR SALE—Library of medical books, white ename. folding table (examining), medical instruments. Will sel reasonably. Write the Journal 9-52.

FOR SALE—Trial case, refraction cabinet, ultra violet and other lamps, compressor and suction apparatus, specialist cabinet, stools, chairs, tables and other items, fountain cuspidor, large selection of EENT instruments. Retiring. Write the Journal 10-52.

FOR SALE—16-inch Castle electric sterilizer. Like new. Write the Journal 12-52.

FOR SALE—Old gas sterilizer, 3 sections, gauze, instrument and water heater, serviceable condition, $35; Sorensen suction pressure outfit, $40. Write the Journal 14-52.

PHYSICIAN WANTED—Excellent opportunity available for draft exempt physician in modern western Kansas county seat town of approximately 2,000. Only young physician on temporary deferment until replacement can be found. Only two other elderly physicians in entire county of over 9,000 population, only one of these located in this city. Write the Journal 15-52.

OFFICE AND EQUIPMENT AVAILABLE in Hutchinson. Deceased physician had fine practice. Write the Journal 16-52.

FOR SALE—Optical equipment, excellent condition, surgical instruments and office furniture. Write the Journal 17-52.

Nationally advertised Surgical Supplies and Equipment have been placed at Topeka, Joplin, Kansas City and St. Joseph for your convenience by—

GOETZE NIEMER CO.

Management by Dr. W. F. Goetze, a member of the American Medical Association, assures intelligent servicing of your orders.

PHARMACEUTICALS

A complete line of laboratory controlled ethical pharmaceuticals. Chemists to the Medical Profession since 1903.

KA—9-52

ZEMMER

THE ZEMMER CO., PITTSBURGH 13, PA.

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE
Postgraduate Course in GASTROENTEROLOGY

December 8, 9, 10 and 11, 1952

Monday—Diseases of Gastro-Intestinal Tract

JAMES B. FISHER, M.D., Internist, The Wichita Clinic, Wichita.

CHARLES M. WHITE, M.D., Chief, Section of Radiology, The Wichita Clinic, Wichita.

STEWART WOLF, M.D., Professor of Medicine and Head of Department, University of Oklahoma School of Medicine, Oklahoma City.

SUBJECTS

Structure, Innervation, and Function of Esophagus. Radiological Examination. Esophagoscopy. Benign Diseases of Lower Esophagus. Surgery of Esophagus. Physiology of Stomach and Duodenum. Gastroscopy as a Diagnostic Procedure. Radiologic Diagnosis of Disease of Stomach and Duodenum. Evaluation of Gastric Analysis. Hazards in Diagnosis and Management of Gastric Ulcer.

Tuesday—Peptic Ulcer

KEITH S. GRIMSON, M.D., Professor of Surgery, Duke University School of Medicine, Durham, North Carolina.

ERIC E. WOLLAEGER, M.D., Consultant in Medicine, Mayo Clinic, Assistant Professor of Medicine, University of Minnesota Graduate School, Rochester, Minn.

ROBERT M. ZOLLINGER, M.D., Professor of Surgery and Chairman of Department, Ohio State University School of Medicine, Columbus.

SUBJECTS

Office Management of Peptic Ulcer. Clinical Investigative Evaluation of Parasympatholytic Drugs. Surgery of Complicated Peptic Ulcer. Post-Operative Stomach. Clinical Aspects of Digestion and Absorption in the Small Intestine. Pancreatic Function Tests. Fibrocystic Disease of Pancreas in Children. Pancreatitis, Acute and Chronic. Diagnosis and Treatment of Steatorrhea.

Wednesday—Diseases of Liver and Biliary Tract

WILLIAM E. RICKETTS, M.D., Internist, Chicago.

RICHARD L. VARCO, M.D., Professor of Surgery, University of Minnesota Medical School, Minneapolis.

SUBJECTS

Anatomy of Hepato-Portal System. Physiology and Liver Function Testing. Serum Iron Determinations in Liver Disease. Liver Biopsy. Infectious Hepatitis. Portal Hypertension. Cirrhosis of Liver. Cholecystography. Acute Cholecystitis. Common Bile Duct Surgery.

Thursday—Diseases of the Colon

THOMAS E. MACHELLA, M.D., Assistant Professor of Medicine and Chief, Gastro-Intestinal Section, Medical Clinic, University of Pennsylvania, Philadelphia.

WILLIS J. POTTS, M.D., Surgeon-in-Chief, Children's Memorial Hospital, Chicago.

WILLIAM C. SCHAERRER, M.D., Proctologist, Kansas City, Mo.

ROBERT S. WALLERSTEIN, M.D., Chief of Psychosomatic Medicine Section of Neuropsychiatric Service, Winter VA Hospital, Topeka.

SUBJECTS

Radiological Examination of Colon. Evaluation of Rectal Bleeding in Adults. Bleeding from the Rectum in Infants and Children. Splenic Flexure Syndrome. Amebiasis. Congenital Megacolon. Ulcerative Colitis. Psychosomatic Aspect of Abdominal Symptoms. Anorexia Nervosa.

In addition to the guest instructors listed here, several members of the K. U. faculty will contribute to the program.

Panel discussions are scheduled for the closing hour each day.

Jonathan M. Williams, J. Pediat., 41:1, 18-24 (July) 1952.

Migraine is a syndrome composed of cephalgia, gastrointestinal upset and visual disturbances with the outstanding feature of periodicity. The etiology remains obscure. Balyeat and Rinkel reported that 30 per cent of migrainous adults studied by them developed symptoms in the first decade of life. In this 30 per cent a definite history of allergy was found. Other authors don't regard allergy as a significant factor, attributing the symptom complex to visual fatigue, television, bright sunlight and movies. Children wtih cyclic vomiting are often found in migrainous families and may grow up to have true migraine themselves. The electroencephalographic changes occurring in migraine have been studied and they did not appear like those found in epilepsy.

The authors have studied 20 children who had typical periodic cephalgia, and in one child headaches began at 2½ years. Each case had a thorough neurological examination in addition to the general physical survey, fundoscopic examination for evidence of papilledema, and ear examination. Refraction errors were corrected. Routine skull x-rays were done, as well as electroencephalograms. Each child was observed for a minimum period of six months, to see response to therapy and also detect advancing symptoms of unsuspected brain tumor. The association of migraine and epilepsy was well shown in five of the children. Children seemed to have attacks much more frequently than adults, commonly two to three a week, and in one patient two to three times a day.

Those children with associated convulsive seizures were given the accepted treatment, others were given antihistaminics, Benadryl, Thephorin or Pyribenzamine. These were given at the onset of the attack to abort seizures. Two children were given ergotamine tartrate orally or parenterally and three patients oral ergotamine tartrate, one mg. with caffeine, 100 mg. These drugs were employed at the onset of the attacks and in all instances would abort it. However, it was observed that there was a tendency for the headache to return after a period of about two hours. This secondary headache was best controlled with aspirin. Four patients who had rather suggestive convulsive-like electroencephalographic tracings were given Dilantin 0.1 gms. up to four times daily, and in three of these patients it gave nearly complete freedom from attacks.—*D.R.D.*

Patronize the advertisers who support the Journal of the Kansas Medical Society.

THE KANSAS CITY

SOUTHWEST CLINICAL

SOCIETY

30th Anniversary

"COMMAND PERFORMANCE"

Brian B. Blades, M.D., Washington, D.C.
William Boyd, M.D., Vancouver, B.C.
William L. Bradford, M.D., Rochester, N.Y.
Bayard Carter, M.D., Durham, N.C.
George Crile, Jr., M.D., Cleveland
Robert Elman, M.D., St. Louis
L. H. Garland, M.D., San Francisco
Arthur Grollman, M.D., Dallas
Paul H. Holinger, M.D., Chicago
T. Leon Howard, M.D., Denver
John T. King, M.D., Baltimore
Samuel F. Marshall, M.D., Boston
William A. Sodeman, M.D., New Orleans
W. O. Thompson, M.D., Chicago
J. E. M. Thomson, M.D., Lincoln, Nebr.
Waltman Walters, M.D., Rochester, Minn.

OCTOBER 6-7-8-9, 1952
Municipal Auditorium
Kansas City, Missouri

Oldest Clinical Society in the Midwest (See page 442)

Physicians who have not received the September-Ocotber issue of the Kansas City Medical Journal, carrying the complete program of the "Command Performance," may secure a copy by addressing the Kansas City Clinical Society, 630 Shukert Building, Kansas City 6, Missouri.

PROOF WITH ONE PUFF?



So distinct is the difference between PHILIP MORRIS and *any* other leading brand, that we believe you will notice it with a single puff. Won't you try this simple test, Doctor, and see?

Take a PHILIP MORRIS and any other cigarette

1. Light up either one first. Take a puff—get a good mouthful of smoke—and s-l-o-w-l-y let the smoke come directly through your nose.
2. Now, do exactly the same thing with the other cigarette.

You will notice a distinct difference between PHILIP MORRIS and any other leading brand.

PHILIP MORRIS

Philip Morris & Co., Ltd., Inc., 100 Park Avenue, New York 17, N. Y.

Survey of Medical School Faculties

A survey of medical school faculties, recently conducted by the Armed Forces Advisory Committee and the Association of American Medical Colleges, revealed many interesting statistics in addition to the information which was the primary purpose of the study, a determination of the number of faculty members available to the armed forces. Apparently medical schools are in no immediate danger of losing a significantly large number of faculty members.

Teachers and research workers now staffing medical schools total 15,563, with approximately half receiving no direct payment for their work. Part-time staff members, about 11,600, outnumber the full-time staff, about 4,000, although they provide only two-fifths of the actual instruction time. Nearly 14,000 of the total are physicians.

Part-time employment practices varied sharply from school to school. One institution reported that part-time men comprised 95 per cent of the staff in number and accounted for 80 per cent of the teaching time, while another reported only six per cent part-time faculty, providing four per cent of the total instruction. Generally speaking, schools in heavily populated cities have a larger proportion of part-time faculty.

In 1870 there were some 700 hospitals listed in the files of the American Medical Association. Today there are nearly 8,000. Hospitals are the fifth largest industry in these United States.

At the turn of the century the average hospital stay per patient was between three weeks and a month; the average stay today is less than seven days. . . Fifty years ago the hospital was a place of last resort; today it is a pulsating, dynamic, human organism designed wholly in the interest of the public-sick, ready to serve the community around the clock through the medium of its highly professional staffs and scientific equipment modified as advances of modern medicine dictate.—*Dr. Edgar C. Hayhow, addressing American Surgical Trade Association.*

It is a provocative thought. . . that of the nine leading or first causes of death, tuberculosis is the only one that we possess the means to eradicate.—*Edward W. Hayes, M.D., Calif. Med., Dec., 1950.*

A new research fellowship at Mellon Institute has been established by Parke, Davis and Company for long-range studies emphasizing viruses and tumors, the institute recently announced. Scientists working under the fellowship will also investigate general problems in synthetic organic chemistry and chemotherapy.



THE BROWN SCHOOL

Four distinct units. Tiny Tots through the Teens. Ranch for older boys. Special attention given to educational and emotional difficulties. Speech, Music, Arts and Crafts. A staff of 12 teachers. Full time Psychologist. Under the daily supervision of a Certified Psychiatrist. Registered Nurses. Private swimming pool, fireproof building. View book. Approved by State Division of Special Education.

BERT P. BROWN, DIRECTOR
PAUL L. WHITE, M.D., F.A.P.A.,
MEDICAL DIRECTOR
P. O. Box 4008, Austin, Texas

THE LATTIMORE-FINK LABORATORIES

Topeka El Dorado
Kansas

J. L. Lattimore, A.B., M.D., Pathologist
A. A. Fink, A.B., M.D., Pathologist
H. C. Ebendorf, M.T. Serologist
A. C. Keith, B.S., Chemist
L. W. Hull, A.B., Bacteriologist
Walter Norris, A.B., Chemist

Anatomical and Clinical Pathology

Containers Furnished Upon Request



Pfizer

Antibiotic Division
CHAS. PFIZER & CO., INC.
Brooklyn 6, N. Y.

world's largest producer of antibiotics

Medical and Surgical Supplies for Doctors of Medicine and Hospitals.

Munns Medical Supply Co.
512 Kansas Ave.
Topeka, Kansas

Deformity Appliances of Quality

Orthopedic and Surgical Appliances
Artificial Limbs

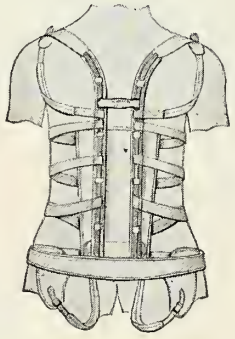
Trusses

Abdominal Supports

Elastic Hosiery

Foot Supports

Surgical Corsets



Taylor Back Brace

Made to Order
In Our Own Factory

P. W. HANICKE MFG. CO.
1009 McGee St. Victor 4750
KANSAS CITY, MO.

Index to Advertisers

Abbott Laboratories VIII
American Meat Institute..... XI
Ayerst, McKenna and Harrison, Ltd..... 453
Brown School 462
Continental Casualty Company XV
Cook County Graduate School of Medicine..... XIV
Duncan Laboratories VII
Goetze Niemer Company 459
Hanicke, P. W., Manufacturing Company..... 464
Kansas City Southwest Clinical Society..... 460
Kansas Oxygen, Inc. XII
Lattimore-Fink Laboratories 462
Lederle Laboratories, Inc. 457
Lilly, Eli, and Company Facing XVIII
Major Clinic X
Mead Johnson and Company Back cover
Medical Protective Company XIV
Merck and Company, Inc..... VI
Munns Medical Supply Company, Inc..... 464
Neurological Hospital Association XVI
Parke, Davis and Company..Inside front cover and III
Pfizer, Charles, and Company, Inc..... V and 463
Philip Morris and Company..... 461
Physicians Casualty Association XVI
Ralph Sanitarium XVIII
Reynolds, R. J., Tobacco Company..... 449
Sandoz Pharmaceuticals, Inc. XIV
Schering Corporation XIII and 451
Searle, G. D., and Company 447
Southwest Scientific Corporation 464
University of Kansas Medical Center 459
Upjohn Company XVII
Washington National Insurance Company..... X
Winthrop-Stearns, Inc. Inside back cover
Woodcroft Hospital XII
Zemmer Company 459
Zenith Radio Corporation, Hearing Aid Division.. IX

Everything for the Laboratory

Southwest Scientific Corporation

LABORATORY SUPPLIES AND EQUIPMENT

122 South St. Francis Street

Phone 2-0582 Wichita, Kansas

THE JOURNAL
of the
KANSAS MEDICAL SOCIETY
Owned and Published by The Kansas Medical Society

Volume LIII OCTOBER, 1952 No. 10

An Instance of the Possible Transmission of Acute Thyroiditis*

Gerald William Nice, M.D., and Rudolph Chess, M.D.
Topeka, Kansas

Acute thyroiditis has been reported following upper respiratory infections, measles,[1] malaria,[2] scarlet fever,[3] rheumatic fever, influenza, meningitis, diphtheria, typhoid and paratyphoid fever, mumps, trypanosomiasis[4] and other diseases,[5] but no specific etiologic factor has been isolated.[6] Since the disease is most often preceded by an upper respiratory infection, the possibility of a filterable virus has been suggested.

Although the disease has been reported following many bacterial and viral diseases, the question of transmission from one patient to another is rarely encountered. Haines[7] described a patient who developed thyroiditis two weeks after visiting her sister who had thyroiditis at the time. Howard[8] had several cases within a period of six months; however, no contact could be found among any of the patients. Nelken and Rubin[9] reported acute thyroiditis in two persons of the same family occurring one year apart. We have recently observed the development of acute thyroiditis in a nurse a few weeks after attending a patient with this disease. The two cases were alike in their clinical manifestations, in the unusual occurrence of splenomegaly as part of the acute syndrome, and in their prompt response to x-ray therapy.

Case No. 1

A 45-year-old white male editor had been apparently well until June 25, 1950, when he developed malaise, fever, and bilateral parietal headache. He was hospitalized at Emporia, Kansas, on July 5. The only notable physical finding was a slightly enlarged thyroid gland with tenderness over the right lobe. Routine hematologic examinations were normal. Repeated agglutinations for heterophile antibody, thyroid, Paratyphoid A and B, Brucella and tularemia and smears for malaria were negative. The chest x-ray was also negative. Daily temperature elevations to 102° F. were accompanied by pain in the anterior neck radiating to the angles of the mandible and the temples. He received penicillin, dihydrostreptomycin, aureomycin, chloromycetin, and aralan with no apparent benefit.

On transfer to Winter V. A. Hospital, July 21, the patient had, in addition to the above complaints, a dry cough and sore throat of one week's duration. Weight loss of 23 pounds had occurred during his illness. Physical examination revealed an acutely ill patient with a temperature of 102° F. and a regular pulse at a rate of 116. The right lobe and the isthmus of the thyroid were enlarged, and were extremely tender during the daily febrile attacks. A beefy red area at the base of the tongue was believed to be aberrant thyroid tissue. No other positive physical findings were noted on admission. Three days later a palpable spleen was discovered three centimeters below the costal margin.

Routine hematologic studies were normal. except for a sedimentation rate of 32 mm. per hour (Wintrobe method). The serum proteins were 7.0 grams per cent with 5.0 grams of albumin and 2.0 grams of globulin. The quantitative van den Bergh was normal. Agglutinations for E. Typhosa, Paratyphoid A and B, Brucella, tularemia, heterophile antibody and Proteus OX19 were negative. Urinalysis, serologic test for syphilis and blood culture were also negative. The electrocardiogram and chest x-ray were normal. Skin tests for histoplasmosis, tuberculosis, blastomycosis and coccidiomycosis were negative.

During the first week of hospitalization the patient continued to have daily temperature spikes between 100° F. and 102° F., with a corresponding increase in pulse and symptoms as noted above. On

*From the Medical Service, Winter Veterans Administration Hospital.

the eighth day of hospitalization he was started on a series of four deep x-ray treatments of 222 r each to the thyroid gland. Following the second treatment the temperature dropped to normal and the pain subsided.

The patient remained afebrile and asymptomatic throughout the remainder of his hospitalization. The sedimentation rate remained elevated until August 17, at which time it was four mm. per hour. Following x-ray therapy the thyroid gradually returned to normal size, the spleen was no longer palpable and the beefy red tissue at the base of the tongue disappeared. Two weeks following x-ray therapy the basal metabolic rate was —40 per cent. He was discharged, August 19, without symptoms, with a basal metabolic rate that had risen to —20 per cent.

Case No. 2

A 41-year-old white female nurse worked on the ward on which Case 1 was a patient throughout his hospitalization. On October 1 she developed malaise and a fever of 100° F., which continued for four days. She was then asymptomatic for about three days, following which she developed severe generalized headache and fever of 99° F. to 100° F. with severe malaise. This was followed by severe pain in the anterior neck region with tenderness to the right of the trachea. She was hospitalized on October 10 with pain in the anterior neck and a sore throat noted especially on swallowing.

Physical examination revealed the thyroid to be enlarged bilaterally and tender; the right lobe more tender than the left. There were no other unusual findings. Routine hematological studies were normal except for a sedimentation rate of 34 mm. per hour. The differential leucocyte count revealed four atypical mononuclear cells per 100 leucocytes. Urinalysis revealed 8 to 10 WBC per high power field with a few trichomonas. Agglutination for Typhoid O was positive in a dilution of 1:40, and for Schottmulleri 1:40. Agglutinations for B abortus, tularemia, heterophile antibody and Proteus OX19 were negative. The electrocardiogram was within normal limits.

The day after admission her temperature was 102.4° F. She vomited several times during the day, and intravenous fluids were necessary. Temperature spiked daily from 100° F. to 104° F. X-ray therapy was started on October 16, with 220 r each treatment for five treatments. She received 500 cc. of whole blood on October 19, because of a drop in the red blood cell count and hemoglobin. The liver and spleen were palpable on October 16, but returned to normal after a few days. The temperature dropped to normal on the fifth day after x-ray therapy was begun, and remained normal thereafter except for three consecutive days a week later. The sedimentation rate remained elevated until November 28, after which it slowly returned to normal. The patient was gradually ambulated and was discharged on December 28. The basal metabolic rate on December 20 was plus 10 per cent. On April 1, 1951, it was minus 17 per cent.

Bibliography

1. Candel, S. Acute Nonspecific Thyroiditis Following Measles —Report of a Case, U. S. Nav. Bull. 46:1109-1113, July, 1946.
2. Sein, M. Acute Non-suppurative Thyroiditis, Lancet 2:673, Sept., 1938.
3. Jensen, D. R. Acute Thyroiditis Complicating Scarlet Fever, Am. J. Surg. 60:301-303, May, 1943.
4. Soffer, Louis J. Diseases of Endocrine Glands, Lea and Febiger, Philadelphia, 1951.
5. Higbee, D. Acute Thyroiditis in Relation to Deep Infections of the Neck, Ann. Otol., Rhin., and Laryng. 52:621-627, Sept., 1943.
6. Womack, N. A., Thyroiditis, Surgery 16:770-782, Nov., 1944.
7. Haines, S. F. Personal communication.
8. Howard, J. E. Personal communication.
9. Nelken, L., and Rubin, H. Acute Thyroiditis in Three Persons of the Same Family. Harefuah 30:191, April 15, 1946.

Committees for 1952-1953

A list of all committee appointments for the 1952-1953 year may be found on Page 482 of this issue of the Journal. Since committee study is the foundation on which many Society activities are based, all members are interested in the make-up of these groups.

Although the chairman of each committee has been notified of his appointment, other members of the committees do not know of their assignments. Names of committee members are listed alphabetically for easy reference.

Premature Rupture of Membranes With Report of a Case*

N. C. Siebert, M.D.
Wichita, Kansas

Older textbooks and literature discussed premature rupture of the membranes and dry labor as a complication of pregnancy to be feared. Norris[1] states that the presence of a normal quantity of liquor amnii and the integrity of the membranes are of vital importance to the well being of both the fetus and the mother and that premature rupture of the bag of waters may be followed by disastrous consequences, and at best, subject both mother and child to increased hazards. However, the newer concept regarding this condition is that premature rupture of membranes per se does not unfavorably influence either the labor or the well being of the mother and child except when it results in an immature or premature infant.

For this reason the literature is reviewed, and a case is presented in which the membranes ruptured earlier and the latent period was longer than in any we were able to find reported. In addition, the case is of interest because we believe that premature rupture of membranes and the long latent period were etiological factors in the production of the arthrogryposis multiplex congenita with which our premature infant was afflicted.

By definition, premature rupture of the membranes is the rupture of the membranes at any time before the onset of labor.

The incidence of this condition is stated by recent authors to be higher than 10 per cent. Those cases which go into labor very soon after rupture account for this seemingly high incidence. In about 60 per cent of cases, the onset of labor is almost simultaneous with rupture, and in a large portion of the remaining 40 per cent, labor starts within several hours after rupture.[2] In Atkins' series of 102 cases, the length of time between rupture and onset of labor varied from less than one hour to 56 days, and rupture occurred most frequently (33 cases) between 24 and 48 hours before onset of labor. In Bishop's series of 636 cases,[3] the longest interval between rupture and onset of labor was 63 days. In Ballard's series of 425 cases,[4] the average latent period in primipara was 13.17 hours, and in multipara it was 21.41 hours. The latent period in our patient was 147 days, and this is over twice as long as the longest latent period of 63 days that we were able to find in the literature. The gestation period of our patient when she went into labor was 34 weeks.

Our patient is also unique in that the membranes ruptured at 13 weeks gestation, which is earlier than any reported case. In Atkins' series of 102 cases, 48 patients were at term, 34 were in the eighth month, 15 in the seventh month and 5 were in the fifth and sixth month of pregnancy.

The etiology of the condition is indefinite. Atkins believes that age, color, gravidity and parity are not significant factors, nor is there history of trauma or other apparent cause for rupture, and there was no increased incidence of pre-eclampsia. In his series there was an increased incidence of mal-presentations, cephalopelvic disproportion and prolapsed cord. Mason[5] feels that breech and abnormal vertex presentations as well as conditions producing increased distention of the uterus are etiological factors. Ballard states that toxemias, syphilis, abnormal presentations and twin pregnancies seem to cause early rupture of membranes.

Titus'[6] view, as expressed in his text, is that any condition which produces unsatisfactory engagement or uneven filling of the lower uterine segment results in the entire weight of the contents of the amniotic sac coming on the point from which external support is gradually being withdrawn as the lower uterine segment forms and the external os begins to dilate. He states that the probability of premature rupture of the membranes is easily understood and actually may be expected. This is logical in a case of premature rupture of the membranes during the period of gestation, when the lower uterine segment begins to form and the external os begins to dilate, but is apparently not the explanation in those cases in which rupture occurs days and weeks before these associated obstetrical phenomena may be expected to occur. Nor does it agree with Bishop who, in his series of 636 cases, found that premature rupture of the membranes usually takes place when the feto-pelvic relationship is favorable enough for the presenting part to enter the pelvis early and easily.

Knox and Hoerner[7] believe it logical that an infectious process in the cervical canal might extend itself to the membranes overlying the internal os, and that these membranes becoming inflamed might then give way under the duress of a strong Braxton-Hicks contraction or other strain. They concluded

*From the Department of Obstetrics and Gynecology, The Wichita Clinic.

that this was the case by gross and microscopic study of the membranes. Schulze[8] makes the further observation that the determining factor in premature rupture of the membranes appears to be a lack of tensile strength, probably due to a deficient development of the connective tissue layers.

In the differential diagnosis of premature rupture of the membranes, hydrorrhea gravidarum must be considered. This is a condition about which there is some disagreement as to etiology and importance in pregnancy. It is said to be an overgrowth of the glandular elements of the decidua, either as a phase of chronic endometritis or as a hyperplastic change of a more simple histologic nature, and quantities of clear fluid may gather from these glandular elements and be discharged unexpectedly in small quantities or in gushes of larger amounts.[6]

Premature rupture must also be differentiated from urinary incontinence, which is fairly common, particularly in the last trimester of pregnancy. In making the differential diagnosis, the history is important, as is also visual and microscopic examination of the fluid. If the suspected fluid is amniotic fluid, visual inspection may reveal flakes of vernix caseosa, and under microscopic examination lanugo hairs may be seen. If it is urine, there may be a characteristic odor, and microscopic examination may show characteristic cellular elements and urinary crystals.

According to Norris, there are several complications of premature rupture of membranes and he mentions, among others, prolonged labor, more severe pain, uterine atony, constriction rings, edematous cervix, injury to the fetus, improper dilatation of the cervix, and infection. In the past, the general complications most feared in the management of patients with premature rupture of membranes have been prolongation of the first and second stages of labor, increased incidence of operative deliveries, injury to the fetus, and sepsis.

There is very little foundation in fact for such a grim prognosis. As early as 1928, Bailey[9] concluded from a series of 477 cases that dry labors were not responsible for long labors except in the presence of other complicating factors. In the same year, Schulze stated that the bad repute of dry labor in general may be due to complicating factors other than the premature rupture of the membranes. Mason and Ballard found that the duration of labor was not increased, and Atkins came to the same conclusion. Bishop found, in his series of 636 cases, that premature rupture actually shortened the first and second stages of labor. Ballard and Bishop found that there was no increase in the incidence of operative deliveries. In neither Bishop's nor Atkins' series was there an increase in the maternal morbidity rate, even in those cases with ruptured membranes for long periods of time before the onset of labor.

Bishop concludes that premature rupture of the membranes does not jeopardize the life of the infant. Atkins states that infant mortality was not increased with prolongation of the interval between rupture of the membranes and onset of labor, that in uncomplicated cases infant mortality was only slightly above average, and that it was higher when labor was induced by uterine insertion of Braun bag. Schulze made a similar observation regarding poor results with uterine insertion of a bag in 1929.

Because it has been shown that premature rupture of the membranes is a relatively innocuous condition, and because complications are higher with unwarranted interference, the management of the condition is simple and conservative and consists of taking the necessary steps to prevent infection of the mother and fetus, reassuring the mother, husband and other anxious relatives, and awaiting the onset of labor.

Case Report

This report concerns a 23-year-old gravida three, para two, whose past history is essentially negative with no serious illnesses or injuries and no operations other than a tonsillectomy at age 15 years and a coagulation of the cervix on August 1, 1950, for chronic cervicitis following a negative cervical biopsy.

Her family history is non-contributory and her husband is in good health.

Menstrual history is normal. The two previous pregnancies and deliveries were normal.

History of this pregnancy is that her last menstrual period occurred on January 12, 1951, making her estimated date of confinement October 19, 1951. Physical examination, urinalysis and blood count on March 15, 1951, were normal except for a hemoglobin of 65 per cent and a RBC of 3,370,000. She is Rh positive. Pelvic examination was as follows: external genitalia, normal; urethral meatus, normal; perineum, excellent condition; uterus, anterior, lying to the right of the midline, freely movable and enlarged to the size of a two months pregnancy; cervix, normal; vagina, normal.

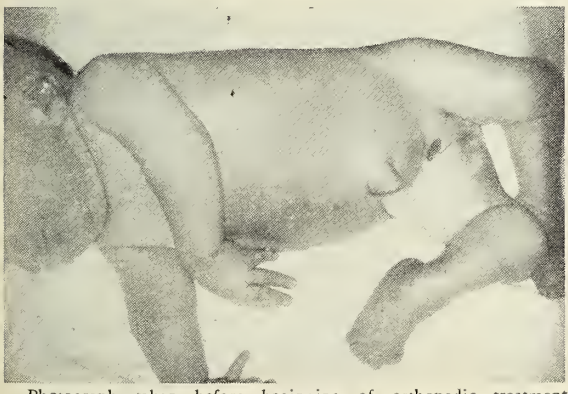
On April 28, 1951, she phoned, stating that on April 13, 1951, she had had several hours of severe uterine cramping and a discharge "as though the water had broken." She stated that the latter part of the discharge had been "pinkish" but that this had rapidly subsided. She had no signs or symptoms of infection. She was advised to stay in bed and come to the office on April 30. She did not come in, however, until May 8, at which time the pelvic examination was the same as initially except for further enlargement of the uterus and the presence

of considerable watery fluid in the posterior fornix of the vagina.

She was given 400,000 units of S.R. penicillin, a prescription for gantrisin, and was advised against douches, intercourse or tub baths. We asked her to return in a week, or to call if bleeding, cramping, chills or fever developed before her appointment.

She did not return, however, until August 20, 1951, at which time she gave a history of intermittent uterine cramping and watery vaginal discharge, there being no apparent association between the two. The uterus at this time measured 26.5 cm. above the symphysis. Visualization of the vagina and cervix was normal except for the presence in the posterior fornix of a watery discharge which was oozing from the external os. Temperature was normal, and there was no evidence of infection.

On September 5, 1951, she called saying that there was slight vaginal bleeding upon arising that morning. She was immediately hospitalized. At 6:00 p.m. she began having irregular uterine contractions which persisted and became more regular and harder at 11:00 p.m., at which time station was —1, cervix dilated three cm. and almost completely effaced. Normal spontaneous delivery of a four-pound (1814 grams) female with arthrogryposis multiplex congenita occurred at 11:50 p.m. There was no evidence of amniotic fluid at delivery. The placenta was grossly normal except for evidence of a marginal placenta previa. A portion of the membranes was absent. The post partum course was entirely uneventful. The infant survived and orthopedic treatment was begun at ten weeks of age.



Photograph taken before beginning of orthopedic treatment showing deformities.

Discussion

"Arthrogryposis multiplex congenita" is a term used to designate contractures of the joints.[10] A rare congenital type of contracture and deformity of the joints, it is characterized by incomplete fibrous ankylosis of the joints, and the multiple deformities are due to thickening and contracture of the periarticular tissues and not to muscle or tendon contractures. It is not hereditary[11] and there are at least three etiological possibilities for this condition:[12] (1) maldevelopment of the ovum or the fetus; (2) intra-uterine joint disease—periarthritis, or (3) intra-uterine pressure and forced intrauterine positions. The picture is not constant, but may vary depending on intra-uterine position.

Apropos of the etiology of this condition, Norris considers, among other functions of the liquor amnii, that the presence of the fluid permits movements of the fetus and thereby tends to prevent faulty development and the formation of adhesions which may result in intra-uterine amputations, harelip, hemicephalus, imperfect closure of body cavities, etc., due to the presence of Simonart's bands (strands of adherent amnion). He states that clubfoot, wryneck and other developmental defects are not uncommon in cases of oligohydramnios.

The marginal placenta previa is probably the etiology of the very early premature rupture of the membranes in this case.

The patient was questioned regarding medical or surgical attempts to produce abortion. She denied intervention of any sort and, knowing her fairly well, since we attended her during her previous two pregnancies, we feel that there is no reason to doubt her veracity.

There is no doubt that the source of the fluid was the uterus as we saw it coming from the external os on several occasions. Microscopic examination of the fluid was negative.

The fact that there was no prepartum or intrapartum evidence of endometritis, and the fact that the sac was not complete at delivery, indicates premature rupture of the membranes rather than hydrorrhea gravidarum. The uterine contractions which occurred prior to and concomitant with the first appearance of watery vaginal discharge and at intervals thereafter, severe enough to necessitate the use of mild sedation and analgesics, would seem to indicate premature rupture of membranes and an irritable uterus.

We believe that the exceedingly premature rupture of the membranes at 13 weeks gestation and the extremely long latent period of 147 days were the etiological factors in this case of arthrogryposis multiplex congenita.

Summary

1. The literature on premature rupture of the membranes is reviewed.

2. A case is presented in which premature rupture of the membranes occurred at 13 weeks gestation and 21 weeks before the onset of premature labor at 34 weeks.

3. Congenital deformities in premature rupture

of membranes are rare, but this case of arthrogryposis multiplex congenita is believed to be due to the exceedingly premature rupture of the membranes and the prolonged period before the onset of labor.

4. The present concept regarding premature rupture of membranes is that it is not a complication to be feared because prolonged labor, increased incidence of operative deliveries, injury to the fetus and infection of the mother or infant are not significant factors.

5. The management of premature rupture of the membranes is to prevent infection and await the onset of labor.

Bibliography

1. Norris, Chas. C.: Am. J. Obst. & Gynec. 19:500, 1928.
2. Atkins, H. T.: Am. J. Obst. & Gynec. 58: 565, 1949.
3. Bishop, E. H.: Am. J. Obst. & Gynec. 48:45, 1944.
4. Ballard, Margaret B.: Am. J. Obst. & Gynec. 32: 445, 1936.
5. Mason, Lyman W.: Am. J. Obst. & Gynec. 26:354, 1933.
6. Titus, Paul: The Management of Obstetric Difficulties, 1950, p. 174.
7. Knox, I. C., Jr. and Hoerner, J. K.: Am. J. Obst. & Gynec. 59:190, 1950.
8. Schulze, Margaret: Am. J. Obst. & Gynec. 17:20, 1929.
9. Bailey, Harold: Am. J. Obst. & Gynec. 16:324, 1928.
10. Katzeff, Miriam: Arch. Surg. 46:673, 1943.
11. Campbell, Willis C.: A Text-Book on Orthopedic Surgery, 1930, p. 664.
12. Stern, Walter G.: J.A.M.A. 81:1507, 1923.

Congenital Defects of the Kidney With Abdominal Pain

John W. Warren, Jr., M.D.*

Wichita, Kansas

In general, physicians and laity alike believe pain resulting from kidney pathology is located in the respective flank. In most cases this is true. However, there are numerous instances in which renal lesions cause abdominal pain as well as gastro-intestinal symptoms, even to the point of resembling intestinal obstruction. The purpose of this paper is to present two cases of congenital defect of the kidney resulting in abdominal pain.

To fully understand these defects, a short summary of the embryology of the kidney is necessary. The formation of the kidney begins in the fetal pelvis. As the fetus further develops, the kidney ascends to its normal position in the region of the first lumbar vertebra. It also rotates on its long axis so the renal pelvis comes to lie medially and facing slightly downward.

Two excretory systems, the pronephros and mesonephros, are partially developed and discarded before the true kidney develops. The mesonephric ducts or Wolffian ducts remain, from which a small pouch or bud is produced. This bud elongates and comes into contact with the nephrogenic tissue, from which the glomeruli and convoluted tubules originate. The elongated bud becomes the adult ureter, renal pelvis, calyces, and collecting tubules.

In the first case to be presented, the kidney did not ascend to its normal position, but remained in the pelvis. In the second case, the right kidney became fused with the left kidney, which drew the opposite kidney across the midline and upward as it ascended, both kidneys assuming positions on the left side of the body.

Case Reports

Case No. 1. W. F., 42, white male, complaining of right lower quadrant pain with radiation to the back, occurring two to three times per week for 16 years. He had seen innumerable doctors and arrived in the office via the orthopedist and the general surgeon. A right inguinal hernia repair had been done in 1948 in a futile effort to alleviate the pain. There was no association with food or movement, but the pain was somewhat relieved by pressure over the lower abdomen or by lying with the right hip flexed.

With the exception of the abdomen, the physical examination was normal. The hernial scar exhibited moderate tenderness. There were no palpable masses in the abdomen.

A complete blood count was within normal limits. Urinalysis was normal, except for a trace of albumin and innumerable leukocytes. A kidney-ureter-bladder x-ray revealed some large irregular calcifications over the right ala of the sacrum. Intravenous urograms disclosed a partial reduplication of the left kidney. The right kidney was not visualized. Retrograde pyelograms showed the calcifications to be renal stones lying in a right, ectopic, markedly deformed kidney (Figure 1). A transabdominal right nephrectomy was done on April 26, 1951. His convalescence was uneventful and he has had no reappearance of the pain.

Case No. 2. N. F., 17, white male, whose chief complaint was pain in the left lower quadrant. The pain was first noted at the age of seven. Occurrence of the pain was as frequent as every two weeks and would last approximately two days. The patient was able to palpate a mass in the left lower quadrant. The mass was not present when he was free from pain. There was no radiation of the pain, which was severe enough to necessitate narcotics. There were no urinary symptoms other than the belief

*Urology Service, Wichita Clinic.

that he voided more frequently than usual just after the pain subsided.

Physical examination was normal, except for the abdomen. To the left of the umbilicus and extending downward and laterally was a tender mass about 10 inches in diameter. It was smooth and fixed. The abdominal wall was stretched tight, but was not splinted. Cystoscopy and retrograde pyelograms were done (Figure 2). The right kidney was fused to the lower pole of the left, and a ureteropelvic obstruction had caused an immense hydronephrosis. The right kidney had been pulled to the left and lay on the left side of the body. The left kidney had been pushed upward and rotated so that the ureter originated from the upper lateral wall of the renal pelvis. The left kidney had a normal function, while the hydronephrotic right one was functionless. A transperitoneal nephrectomy was done on November 2, 1951, and the above diagnosis confirmed. His recovery was uneventful. When seen six weeks later he said he had had no recurrence of pain.

Discussion

The above two patients serve to illustrate congenital kidney defects as a cause of abdominal discomfort which in no way resembles a renal pain syndrome. The congenital defects themselves caused no symptoms. In one instance hydronephrosis and in the other hydronephrosis plus stones were the pathological entities which forced the patient to seek relief. As is the case in many obscure kidney conditions, one patient had had surgery performed for another lesion, prior to his ultimate diagnosis. The urinary tract must not be ignored in our diagnostic effort to find the cause of vague abdominal pain.

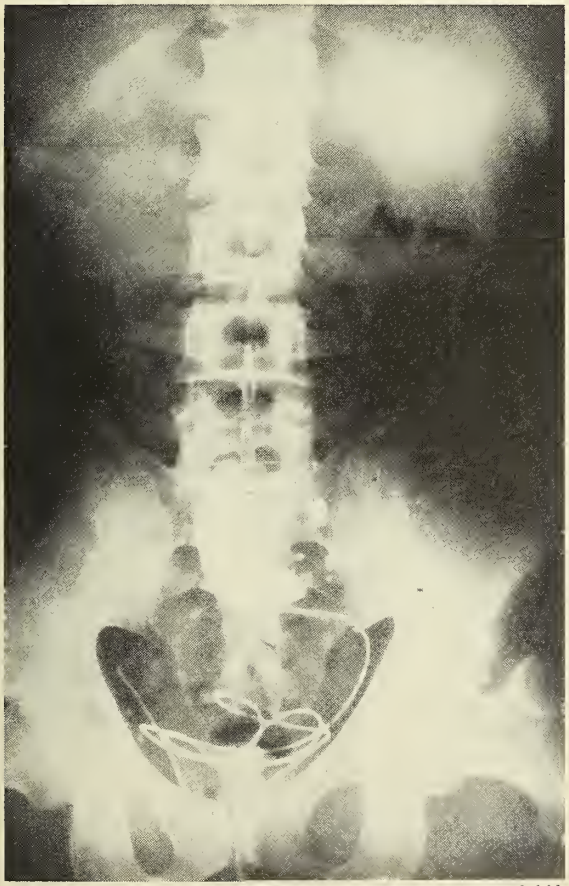


Figure 1. Right retrograde pyelogram revealing a deformed kidney on the promontory of the sacrum.

Summary

1. A short review of the embryology of the kidney has been presented.

2. Two patients with congenital renal lesions causing lower abdominal pain have been discussed. This pain was not typical of a renal pain syndrome.

3. A more thorough study of the urinary tract in patients with vague abdominal pain has been suggested.



Figure 2. Bilateral retrograde pyelogram revealing the left kidney to be rotated laterally and pushed upward so the ureter enters the renal pelvis from the lateral aspect. The right kidney is a large hydronephrotic sac with the ureter entering it from above and laterally.

General Practice Today

Paul Williamson, M.D.*

Memphis, Tennessee

One of the major problems facing American medicine today is the development of a sufficient supply of well trained family physicians. The public has made it clear time and time again that it wishes a renewal of the family doctor type of relationship. No legitimate complaint has been made about the quality of scientific medical care, but many justified complaints have been made about the lack of availability of medical care in certain locations, and about the absence of the warm, human understanding which was so much a trademark of the family physician.

Knowledge of this demand is not a new thing at all. Leading medical schools have for several years been exploring, somewhat tentatively, the possibility of expanding the training of physicians for general practice. It is unfortunately true that such expansion has been considered largely along the lines of increased scientific training. I believe that we all recognize that this is *not* all that is needed.

The majority of illnesses to which the human race is susceptible are clear-cut entities which are easily treated in routine fashion and nearly certain to respond to well known medication. The complicated, difficult case is rare. Usual among the problems of the general physician and surgeon are those human problems that are frequent in all walks of life. The statement has been made often, and is certainly true, that warm, human understanding of an individual is more important than all the drugs and surgery at our command. This is true if one considers the statement as reflecting the importance of various therapies on the total picture of illness.

Beyond question, the mechanistic physician is dying. A new era in medicine, an era that might be called the time of comprehensive medical care, is gradually coming into being. This comprehensive medical care, to me, simply means doing whatever is necessary to keep a person from feeling bad. As we look at medicine now, all too frequently the unit of practice is the acute phase of a single disease—a habit developed by training of many years. No physician who will consider his patients for a moment would say that this is the proper way to treat them. Whether we care to admit it or not, most of our practice is psychosomatic. More man hours and man days are lost because of psychoneuroses than any other three diseases combined. Before being challenged on this statement, I would like to remark that the prevalence of psychoneuroses approaches being 20 times that of any other disease, including the common cold. Psychoneuroses are crippling diseases in that they may last for years.

Many times in talking to our students at the University of Tennessee, we oversimplify the problem by telling them to forget terminology and to forget our efforts to be scientific about intangibles. We simply say that most of the trouble in the world is trouble with worried people. I believe this is true, and I have yet to talk to a general practitioner who does not agree, at least in part.

The old country physician, the family doctor that the public seems to miss so much, was, by and large, an expert in dealing with worried people. With the emphasis of the last few years on organic pathology, much of this art of dealing with the tense and nervous person has been lost. One might go so far as to say that we have submerged our art in a sea of elixir phenobarbital. Quite naturally, the public resents this.

I can remember the family doctor who took care of me in my youth. I think most physicians have such memories. In the light of sober consideration of later years, I don't believe he knew very much, but he certainly knew how to handle children, and he made me feel better when he came into my sick room. Such is the art of medicine.

One learns to deal with people only by dealing with people. In offering medical training, we frequently put great emphasis on organic pathology. On the problem of taking one patient and studying him from tip to toe, the young men misplace their study emphasis. This is not to criticize in any way the scientific training given to physicians. I believe that the best trained group of men in the world today are those graduates of Class A medical schools. We must, however, be realistic and admit that our young men frequently have no knowledge of patients as people. Such knowledge is the very core of the art of being a doctor. Until we can emphasize and re-emphasize to our students that patients are more important as people than as carriers of disease, we are only partially training doctors.

If the medical profession is to continue its upward climb, and if we are to gain some of the stature we have lost in the eyes of the public, we must first emphasize the making of good family physicians. We must, too, re-evaluate the individual practitioner's status and convince him that patients as people are more important than disease. To do this

*Director of General Practice Department, University of Tennessee.

we must begin in our medical schools to give young men more experience in dealing with masses of people. The out-patient department is the logical place to do this.

Over half the medical schools in the United States are making some provision to study this problem, and many are attempting actively to meet it. No reasonable evaluation of our success in dealing with the problem will be available for several years, but one can say that many schools are on the right track and should be encouraged greatly by the family physicians who are now in practice.

Several agencies are attempting to evaluate and to help in re-educating the practitioner. Such work should be recognized by county medical societies and should be encouraged by the profession as a whole. When these things are done the people will offer approbation to the profession. There will be many more fine doctors and no fewer fine medical scientists.

Of all the existing branches of medicine, general practice is now being considered more frequently, by leaders, as the field of medicine that is emerging in the forefront of development. For many years the general practitioner was considered simply the work-horse of the medical sciences. He was the man who carried the greater part of the load while the highly trained medical scientist was the man who developed all new concepts.

This has changed somewhat in the past several years. We are now beginning to consider the general practitioner as a man with an opportunity to develop a completely new type of medical care. Many discussions of what we might call comprehensive medical care are now under way. Most of us in the profession certainly feel that there has been too much emphasis on the single, individual disease and too little on the patient as a person. The only place that this situation can be attacked logically is in the general practice of medicine.

Today, the family physician has an opportunity to expand his field to include all phases of this comprehensive medical care. The most interesting fact about this is that public demand has been strong for such medical care. The psychosomatic aspect of disease is important and basically the consideration of the patient as a person rather than as a carrier of disease is necessary. We believe that the day may come when comprehensive medical care for the direction of medical problems lies in the hands of the general practitioner. We believe, too, that the day may come when the highly specialized physician subserves his true purpose as an expert in the obscure and difficult, when he assumes his true position as a splendid medical scientist, trained to consult with and aid in the medical care of any patient.

As medicine is practiced now, we are grossly unfair to specialized physicians. We have trained so many that there simply is not room for the specialist to subserve his true function. For example: in our own city of Memphis a young obstetrician, who might be forced to depend upon consultation or rare and difficult cases, could reasonably expect to make between $100 and $200 a year. In this situation we find obstetricians competing with general practitioners for normal obstetric cases and quite frequently doing all the general practice that they can. This is not to be taken as a criticism of the specialist. It certainly is not his fault and is unjustly handled when he is forced by economic pressure to depart from his specialty and engage in general practice.

With the specialty fields crowded and with the public demand for the return of the family physician, nearly all opportunities for greater development of American medicine are lying in the field of the family physician or the general practitioner. As his work expands and as he gains the concept of comprehensive medical care, we can expect a complete revolution in the type of rural medicine that is practiced in this country.

In the past we have sometimes looked upon the rural practitioner as a benign old man who knows nothing and does little, scientifically, to aid his patients. It is quite probable that this concept may be right in many instances. Now we look upon him as a grossly over-worked middle aged gentleman who is well trained but who has no time at all to put this training into effect. That concept, I am sure, is right in far too many instances.

To repeat, the greatest shortage in American medicine is a shortage of general physicians. The greatest opportunities in American medicine are opportunities to expand the field of interest to include more comprehensive care of the patient.

PATRONIZE JOURNAL ADVERTISERS

It is advertisers who make possible the publication of the Journal in its present form. They are deserving of your patronage.

PRESIDENT'S PAGE

Dear Doctor:

We feel a bit like the Australian native who bought a new boomerang and then went crazy trying to throw the old one away.

For some time now there has been a widespread feeling among the profession generally that the problem of socialized medicine at last was becoming a dead issue. In fact there have been some statements from high level sources to that effect. Other advices have called attention to the fact that only the scene of acivity has been changed and that the threat of greatest danger to the medical profession as regards this program and the socialization of the world generally is being made through the I.L.O.

The A.M.A. Journal of August 23 has a very fine editorial and other material on this probability, which should be must reading for every doctor of medicine. We urge you, if you possibly may have overlooked this, to check back and read it. It is absolutely necessary that every doctor be conversant with the inner workings of the I.L.O. in order that he may exert his influence at the proper time. These treaties which are called covenants must be ratified by a two-thirds vote of the Senate only. That does not mean a two-thirds majority of the Senate but only a two-thirds vote of the members present.

Some of the provisions of these covenants are vicious, to say the least, and if adopted would virtually set aside the constitution of the United States. It is not too early to let your senator know that you oppose such a program, and then follow with a continuing effort when the proper time comes, realizing that win, lose or draw as far as the national election is concerned we would be socialized in short order if the Senate missed the boat.

There is another fly in the ointment which will have to be watched with equal interest. We refer to H.R. 7800 which is now P.L. 590 and is the law of the land. It is the disability section of this act which is particularly objectionable. We have one more chance at that when the hearings come up again in July, 1953. Obtain a copy of P.L. 590, study it, and be prepared to write intelligently about it when the time comes.

Socialized medicine then is not a dead issue. The very opposite is true. We must continue our efforts if we expect to successfully oppose it.



EDITORIAL COMMENT

Treaty Law

A surprising and more than a little frightening prospect recently appeared on the national horizon. This nation faces socialism merely by the ratification of a simple treaty. Until now, the law of the land has been created in the Congress, but today and from this day forward America faces a continual threat that the ratification of a treaty will accomplish what one Congress after another has decisively rejected.

In all truth, a crisis does not appear imminent. Observers agree that this will not happen at present, but the machinery is assembled, awaiting now only the opportune moment when the switch will be thrown and operations begin. It is the future danger that presents the greatest hazard, a danger that will exist indefinitely, a danger requiring continual vigilance.

The International Labor Organization, known as the I.L.O., met in Geneva in June of 1952 and during this convention approved minimum standards of social security in nine fields: medical care, sickness benefits, unemployment, old age, employment injury, family, maternity, invalid and survivor benefits. The medical care section is socialized medicine, following the familiar pattern of compulsion, and all its trimmings. The major difference, if indeed it would be different at all, is presented in two alternatives, should any nation reject the primary program. The first of these is insurance (probably compulsory) through private companies but "administered by public authorities under established regulations." The other, should this part fail, is again voluntary insurance administered by insurance companies but under government "supervision." Coverage under any plan must be not less than 50 per cent of the population.

That and similar provisions for the other eight social security programs were adopted at this I.L.O convention, with the United States delegation favoring the motion over a minority objection. The United States sent four official delegates. Representing government were Senator Murray (D. Montana) and Assistant Secretary of Labor Philip M. Kaiser; representing labor was George P. Delaney, of the American Federation of Labor, and Charles P. McCormack, president of the McCormack Tea and Spice Company, was the employer representative. They took with them 25 advisers.

The action by the I.L.O. has now been submitted to 65 countries for ratification. In the United States a two-thirds action by the Senate is required, and it may be submitted at any time by the President or the Secretary of State. This may be done at their pleasure. The issue is never dead.

But that is still not the most hazardous part of the plan. The Geneva conference also included in its treaty that whenever any nation adopts four of its nine provisions, the entire program shall have been approved. The Senate might be given the relatively accepted story of unemployment benefits, survivor benefits, employment injury benefits and old age benefits, for example, approve those and suddenly learn this action has given the United States a system of socialized medicine by treaty, even though the subject was never discussed.

It is true that the above paragraph is exaggerated because socialized medicine could not operate without appropriate legal machinery, but its approval could be obtained in this manner. And that danger is now present forever. It marks a new system of acquiring legislation in which established democratic processes are replaced by totalitarian methods. This may result in many laws that the lawmakers had no intention of passing and, of course, creates a serious situation.

But most frightening of all is the fact that the legislative branch of the United States government has permitted itself to be maneuvered into a position where treaty law is possible in the first place.

The Government and Free Enterprise

In the July issue of the *Journal of the Kansas Medical Society* an editorial appeared on the subject of "More Power from Niagara." Although this had no bearing on medicine, it appeared to be of interest because of the fact that the government was issuing a threat to compete against private enterprise. It is true this was in the field of public utilities, but it involved a situation where private industry was perfectly willing to finance the project but could not obtain permission from the federal government to do so. In every previous federal power project some other factor such as reclamation, flood control or transportation was involved. Here the issue was electric power for public consumption and nothing else.

It now appears that the privately owned electric power companies of the New York area are succeeding in their struggle, but there is a sequel to this story which presents a comparable problem but along different lines. Again, it represents the federal government invading the area of private enterprise. And again it deals with electric power.

The government proposes to construct a huge atomic energy plant somewhere in the eastern sector

of the middle west. Specifications declare that more than two million kilowatts of electric power will be required. This, we are advised, is as much as is generated within the entire state of Indiana and three times the amount supplied to the city of Washington. D. C. It is estimated that the construction of a power plant of this magnitude would cost 300 million dollars.

The *Nation's Business* for September, 1952, carries a brief item advising that private companies have been offered the opportunity of building this plant. The government would then purchase the electricity therein produced, but only for a period of three years. Beyond that time, the government will make no further commitments. The next step in the negotiations is that the government refuses to permit private industry to amortize this cost within the three-year period.

Free enterprise in the electric industry now faces the dilemma of investing one-third of a billion dollars in the construction of a plant that may operate only three years, during which time the initial cost would not nearly be repaid. Should industry refuse, government will step in under the guise of a national emergency and declare that industry could not or would not supply the necessary power. In such an instance the government might well state that it has no alternative but to build the plant itself.

This means of course that the doctor and everyone else in Kansas and in every other state will pay for the construction of this plant. Then, whether it is used three days or three years, the issue is of no consequence. In its telegraphic report of this situation *Nation's Business* closes the discussion with the following comment.

"Private power people are told that's the deal—if they don't want it, don't blame Government for going into the business. Last month private power companies were trying to figure out how to take the deal."

Grievance Committees

The American Medical Association recently issued a pamphlet reporting on grievance committees. Following the meeting of the House of Delegates at Washington, D. C., in December, 1949, when that body recommended that all constituent medical associations form grievance committees, a considerable number of states have complied. At the present time the total is 42. Thirty-four have special committees for this project alone and six, including Kansas, have assigned this function to the Council. That leaves only eight states at present which have not set up activities of this type, and four of those are currently in the process of getting this done.

There is a wide variation of names used for a committee of this kind, of which the most popular is Grievance Committee. Among the others are such titles as Board of Advisors, Mediation Committee, Judicial Council, Public Liaison Committee, and Welfare Committee. In Kansas, as stated earlier, the Council performs this function and no specific name has been given. A further recommendation through the A.M.A. is that local committees be organized in each county medical society. Our state has made a beginning in this direction in that seven of 72 component societies now have organized grievance committees.

There is a well demonstrated need for work of this kind. The Kansas Medical Society regularly receives letters of complaint from patients. Whereever possible, these are resolved through the local society. Where that cannot be done, the complaint is submitted to the Council. The basis of complaints against the medical profession varies considerably, but without question the majority result from a lack of understanding of physicians' charges. In such instances the solution is easy when the physician submits an itemized statement and explains to the patient the basis on which the charges are prepared. It is a rare instance where such effort has failed to justify the cost in the patient's mind.

The physician's failure to provide the type of service expected by the patient is the basis of frequent complaints. This involves a variety of problems such as the difficulty experienced in obtaining a physician who will make a home call, the physician's apparent disinterest in the patient, and occasionally because of his inability to arrive on time for deliveries. A third and less frequent category involves the patient who is generally dissatisfied with the medical profession. Except for this last group, experience in Kansas has shown the average complaining patient to be sincere and willing to cooperate with any plan he believes to be reasonable. The third category is of course difficult under any consideration.

The ultimate value of a grievance committee rests not only in solving the individual cases brought to its attention but in two other significant, if less tangible, areas. First of these is the public relations value of the satisfied patient. The patient with a grievance tells his story widely, and ultimately creates considerable ill will toward the medical profession. Each instance of an aggrieved patient that is satisfactorily solved reverses that process. The second advantage is that the physician himself will quite readily cooperate with such a committee if it is sponsored by his own medical society. The net result from this factor is the reduction in causes for complaint.

Therefore, the Kansas Medical Society again recommends to each component society that an active

and well organized grievance committee be formed. Experience has shown that a committee of this type should be advertised. There will be a few nuisance complaints, but that problem will be slight in contrast to the good will that can be built for medicine through the profession's cooperation in such projects.

Oklahoma City Clinical Society to Meet

The Oklahoma City Clinical Society's annual four-day conference will be held this year from October 27 through October 30. This conference, beginning in 1930, has become an outstanding meeting, and a larger attendance than ever is expected this year.

The program of instruction, in which 17 well known guest speakers will participate, has been planned to interest all physicians, specialists and general practitioners alike. A list of the speakers may be found in an advertisement on Page 501 of this issue. Daily round table luncheons, first initiated at the Oklahoma City meeting, will be held, and there will also be general assembly panel discussions and clinical pathological conferences.

The society has been authorized to make the following announcement: "Upon recommendation of the Oklahoma Academy of General Practice, the Annual Fall Clinical Conference of the Oklahoma City Clinical Society is classified as a formal study course by the American Academy of General Practice. Academy members will receive credit for the actual hours of attendance toward the 50 hours of formal postgraduate study required every three years."

Physicians desiring assistance in making hotel reservations are asked to write the executive secretary of the society, 512 Medical Arts Building, Oklahoma City, Oklahoma.

A new compound to control nausea and vomiting stemming from a wide range of ailments has been made available to the medical profession by Winthrop-Stearns, Inc., it was announced recently. Apolamine, the antiemetic, is designed to counteract various inciting factors and physiologic accompaniments of nausea and vomiting. It is indicated in pregnancy, motion sickness, alcoholic gastritis and non-specific vomiting, anesthesia and radiation sickness, and vomiting due to pain relieving drugs, its makers indicate. The product is composed of Luminal, atropine sulfate, scopolamine hydrobromide, benzocaine, riboflavin, pyridoxine hydrochloride and nicotinamide.

The great physiologist, Claude Bernard, in 1854 determined scientifically that sugar is more rapidly available for energy than any other common food.

Service Separations

As a service to physicians and communities in this state desiring additional medical personnel, the Journal of the Kansas Medical Society will publish in this column each month the names of medical officers who will shortly be separated from the armed forces. These are men who volunteered from Kansas, and many of them will probably be interested in finding locations in this state. Anyone interested in contacting these physicians may write to the address here given.

Niles A. Borop, Jr., M.D.
U. S. Army Hospital
Camp Carson, Colorado

Herbert Bunker, Jr., M.D.
U. S. Army Hospital
Fort Riley, Kansas

Joseph E. De Laurentis, M.D.
Box 782
Claflin, Kansas

Charles C. Gilkey, M.D.
1731 Clay Street
Topeka, Kansas

Charles R. Hopper, M.D.
172 Artillery Loop
Fort Sam Houston, Texas

Charles A. Isaac, M.D.
311 East 10th
Newton, Kansas

Edwin R. King, M.D.
1708 First Street, N.W.
Washington 1, D. C.

Karl D. Kobler, M.D.
Morland, Kansas

Harold Korner, M.D.
2601 High
Topeka, Kansas

Robert Arthur MacNaughton, M.D.
1426 West 20th Street
Wichita, Kansas

Warren William McDougal, M.D.
1070 West 3rd Street
Colby, Kansas

James R. Nolan, M.D.
205 South Bethany
Kansas City, Kansas

Walter J. Nowers, M.D.
305 Handy Circle, Van Horne Park
Fort Bliss, Texas

Donald R. Pierce, M.D.
1015 Polk Street
Topeka, Kansas

Melvin A. Porter, M.D.
Dellvale, Kansas

Joseph E. Seitz, M.D.
Wakeeney, Kansas

Robert L. Stevens, M.D.
Oskaloosa, Kansas

Rex Roger Taggart, M.D.
3700 Cambridge
Kansas City, Kansas

Richard C. Tozer, M.D.
Winter V.A. Hospital
Topeka, Kansas

John L. Weaver, M.D.
4206 Prairie Lane
Mission, Kansas

Robert W. Weber, M.D.
5641 Tahoe Lane
Kansas City, Kansas

Robert Weimer, M.D.
206 Third Street
Fort Leavenworth, Kansas

George A. Westfall, Jr., M.D.
Hertzler Clinic
Halstead, Kansas

Lyle E. Wonderlich, M.D.
612 Eighth Street
Concordia, Kansas

Case Reports From The University of Kansas Medical Center* Tumor Conference

Carcinoma of the Rectum and Rectosigmoid

Edited by Floyd R. Skelton, M.D.,** and Robert E. Stowell, M.D.

Dr. Helwig: These cases are a commentary on the intelligence and vigilance of both patients and doctors. Each of these patients had a history of symptoms for over a year, and therefore have had their cancers much longer than that. The length of time which elapses nowadays between the onset and diagnosis of cancer of the colon or rectum has been considerably reduced so that it is disheartening when a routine examination is not done which, in at least two of these cases, would probably have revealed the malignancy in its early stages.

Case No. 52-82

E. C., a 52-year-old white woman, was admitted to the Medical Center for the first time on June 26, 1952, with a history of rectal spotting for one year, which increased to frank bleeding three months before admission and was particularly severe for the last three weeks. On admission the patient complained of general fatigue and weakness. General physical examination revealed nothing considered abnormal, but sigmoidoscopy showed an ulcerating growth extending around the rectum approximately seven cm. inside the orifice. Laboratory studies showed an erythrocyte count of 4,250,000 and a hemoglobin of 11.8 grams. Treatment consisted of abdominal-perineal rectosigmoid resection. The postoperative course of the patient has been satisfactory.

Dr. Orr. Had this patient been seen by a doctor prior to admission to the hospital?

Dr. McCroskey: No, sir. She had not gone to a doctor until just a few days before coming here.

Dr. Montgomery: On routine roentgenograms a sigmoid lesion will frequently not be demonstrated because it is hidden behind the rectal shadow. However, spot films on this case showed the sigmoid deviated to the right instead of the left as usual, and the barium outlined a narrow channel with the characteristic sign of a sharp cut-off at both ends of the lesion. While not well recorded on film, it was strikingly shown fluoroscopically.

Dr. Boley: The rectal biopsy taken at the time of sigmoidoscopy showed transition from normal epithelium to tumorous tissue.

Microscopic examination of the surgical specimen showed the ulcerated nature of the tumor and the fact that it had a rolled edge. A good deal of the significance, as far as the patient is concerned, lies in the fact that the tumor, though it compressed and thinned out the muscularis, did not extend through the muscular layer. There was no invasion of blood vessels or perineural lymphatics, and there were no lymph node metastases. Even though this individual has gone for a period of one year, she has a fairly good prognosis.

Dr. Orr: First, this case is interesting from the standpoint of diagnosis. Here is a patient who went a year, having noticed blood at intervals during that period, and did not see a doctor. Of what value is all our educational propaganda regarding cancer if patients are going to do that? Of course there are some who do not believe that we should have so much cancer propaganda, who feel that it unduly frightens people. Here's an instance in which the patient would have been better off had she been frightened perhaps and had gone to a doctor earlier.

What is the future of this case? It looks rather favorable, since no metastases were found. That does not mean of course that there may not be metastases. A years ago when this patient first had bleeding, perhaps this was a benign polyp or an early malignancy which might have been removed and the rectum saved.

Some may ask why I didn't save the rectum now. At the time of operation we debated whether we should do an anterior resection or a combined abdominal-perineal resection. However, the tumor was rather large, it almost surrounded the rectum at the rectosigmoid junction and it had become adherent to the serosa just above the peritoneal reflection. Because of the duration and size of the tumor, and because it appeared to infiltrate the serosa, we thought it would be wiser to do a combined abdominal-perineal resection.

Judd and Bellegie[1] review some of their cases in which anterior resections have been done, and show that the recurrence rate is higher when the tumor is seven or eight cm. from the anal orifice than it is when the lesion is several centimeters higher. Some believe that all high rectal tumors and tumors of the

*Cancer teaching activities aided by a grant from the National Cancer Institute.

**Trainee of the National Cancer Institute.

rectosigmoid should have a combined abdominal-perineal resection. However, I think we can be a little more reasonable than that, and if one is apparently early, small, and there are no definite findings to indicate spread, I think we might do an anterior resection in such a case.

Dr. Lilly: I think another point worth emphasizing is the value of a sigmoidoscope. It is really an inexpensive adjunct to one's armamentarium, and when you realize that 72 per cent of the lesions of the rectum and the colon can be encountered by fingertip, and 92 per cent of the tumors in the bowel can be found with the sigmoidoscope, it is evident that you are really doing a big service to the patient by looking into this very much neglected orifice.

Case No. 52-83

H. A. is a 67-year-old retired white farmer, who entered this hospital complaining of rectal bleeding. A year prior to admission he had had a two-week episode of passing small amounts of bright red blood per rectum. He had no further symptoms until about four months prior to admission, when he again began passing small amounts of bright red blood which persisted until shortly before admission. Believing that he had hemorrhoids, he visited a rectal clinic, was told he had a high-lying large bowel polyp, and was referred to one of the staff medical doctors. Roentgen examination at that time revealed a large polyp with an irregular contour in the proximal sigmoid colon.

Systemic review revealed no symptoms other than rectal bleeding. Physical examination showed a healthy elderly man with mild hypertension and slight tenderness in the left lower quadrant. Sigmoidoscopy revealed no distal rectosigmoid, rectal or anal abnormalities. His erythrocyte count was 4,250,000 and his hemoglobin was 10.7 grams. Treatment consisted of sigmoidectomy with an end-to-end anastomosis.

Dr. Orr: Had he seen a doctor prior to this present time?

Dr. McCroskey: Not to my knowledge, Dr. Orr.

Dr. Tice: In the direct line view there was a circumscribed lesion resting high in the sigmoid, which looked like a large polyp with perhaps some invasion around the base. It did not appear to be causing any particular obstruction. Did you see it on sigmoidoscopy, Dr. Orr?

Dr. Orr: No, it was too high.

Dr. Boley: The gross specimen was 23 cm. long and 5 cm. from its distal end a large polypoid mass that measured approximately 5 cm. by 4.5 cm. projected 1.5 cm. from the surface. The microscopic section demonstrated the fungating tumor mass which gave the defect noted in the roentgenogram. It extended much deeper than most tumors of this type, having passed through the submucosa and muscularis into the subserosa. Examination of the regional lymph nodes showed that the greater part of their substance was replaced by tumor, only a small amount of lymphoid tissue remaining around the rim. The metastases showed much more mucous secretion than the primary tumor. The prognosis is not as good in this case as in the preceding one.

Dr. Orr: These polypoid carcinomas of the sigmoid are usually preferred by the surgeon because he can remove them without removing the rectum. There is danger, of course, of not removing enough. However, if there is much involvement of the adjacent lymph nodes it may be wise to remove the whole left colon, and the mesenteric artery with it. I didn't think that was indicated in this case because the tumor had not grossly infiltrated the serosa and actually felt like a polyp, although it is a little firmer to the touch than most polyps.

Dr. Bly: There is a known correlation between familial multiple polyposis and cancer of the colon, a predisposition you might say.

Dr. Lilly: It is also well recognized that in ulcerative colitis there is a distinct predisposition to malignant degeneration in the colon, not only in one site but in several. I think the reports in the literature indicate that the unfavorable prognosis in such cases is due to the relatively late diagnosis. Too few people appreciate the predisposition to malignant change in ulcerative colitis.

Dr. Helwig: One rather large series[2] showed that carcinoma was 100 times more frequent in chronic ulcerative colitis than in the general population, which is certainly sufficiently significant to at least make one aware of the possibility.

Case No. 52-84

A. F. is a 73-year-old white man who entered the hospital with a chief complaint of chronic constipation for the past year. One year ago tenesmus and pain in the rectum were noted on bowel movements and there has been constant use of laxatives for the chronic constipation since that time. He has had some bleeding through the rectum and a weight loss of 23 pounds over the past year. A roentgenogram one year ago revealed a tumor low in the descending colon, which was later reported to have disappeared, only to reappear as a mass in the rectum. In January of this year he was hospitalized and at that time had several barium enemas. He has never had a rectal examination.

Physical examination of this patient showed a large, fungating, irregular, indurated mass in the rectum, which appeared to occupy the entire rectal mucosa. Laboratory studies on admission showed an erythrocyte count of 2,500,000 and a hemoglobin

of 6.3 grams. Treatment consisted of a two-stage abdominal-perineal resection.

Dr. Boley: The gross specimen consisted of 18 cm. of the rectum and about 26 cm. of ileum that was attached to the tumor mass. The tumor itself was approximately eight by seven cm. and completely encircled the rectum. There was extensive ulceration and, in the area where the ileum was attached, a fistula extended into the ileum. Grossly, the tumor had invaded through the muscularis.

Microscopically, the tumor was producing considerable mucus in some areas, while in others it showed the same pattern as both of the previous tumors and had extended through the muscularis into the subserosa. There was extension of the tumor into the ileum, with a good deal more inflammatory change than one usually finds. There was no blood vessel and no perineural invasion in any of the sections. In addition, no metastases were found in any of the 27 lymph nodes examined, a fact which seems a little strange for carcinoma of the rectum. It is difficult to say what the prognosis would be in a tumor of this size, which has extended locally as much as it has without producing lymph node metastases.

Dr. Friesen: This patient, as in the other cases, also has a history of one year's duration; however, this patient had been seen by a physician at least six months prior to definitive treatment. During this six months' period he had been hospitalized and had had four barium enemas in an effort to make the diagnosis. There had been no digital examination of the rectum, according to the patient.



Figure 1. Photomicrograph from case 52-84 showing the transition from normal rectal mucosa to cancerous tissue. Note the rolled edge and undermining of the normal mucosa by tumor.

Upon admission here there was evidence of weight loss and anemia, and he complained of pain in the rectum with little control of his bowels. He was unable to sit down comfortably. On digital examination there was a large polypoid cauliflower-like lesion filling the rectum.

At operation the tumor was extremely large, filling the entire pelvis, and was intimately attached to the prostate and base of the bladder. It had also invaded a loop of the small intestine. This was resected en bloc. It was interesting to note that there were no lymph node metastases despite the large size of the tumor and the one year's history, probably indicating that cancer of the rectum may be a slow-growing lesion. It is known that cancer of the stomach is a slow growing tumor, and in some patients whom I have studied,[3] the silent interval (the time during which cancer grows before it produces symptoms) was found to be around 22 months, so cancers of the stomach, and perhaps this is true of the rectum also, can grow for many months or even a year or two before symptoms assert themselves. In spite of long histories we must attempt to cure these people, and if cure is found not to be possible, perhaps palliation can be accomplished.

Dr. Tice: The diagnosis of tumors in the rectum is made, of course, by either feeling or looking at them; in the sigmoid it is made by looking at them, while above that point the radiologist must visualize them. They offer a special problem in diagnosis since the lesions terminate abruptly on both sides. It is entirely possible to fill the colon with barium and not see the lesion. It becomes necessary to turn the patient to one side in order to bring out the hidden areas and thus visualize the lesion.

Dr. Friesen: Occasionally repeated digital, sigmoidoscopic, and roentgenographic examination of the patient will not reveal a lesion despite the continuance of bleeding by rectum. In such a case where a polyp or small carcinoma is suspected, exploratory laparotomy is strongly indicated as a diagnostic procedure in order to determine the source of the continued bleeding.

Dr. Firminger: I would like to add one word of caution; that the attempt on the part of many people to preserve adequate sphincter control might be in error. In operative procedures for cure of carcinoma of the rectum the preservation of the anal sphincter should be entirely secondary in the mind of the operator. The primary consideration is curing the lesion; and if that means colostomy, it means a colostomy without compromise. It has been well shown that colostomies are not too bad except psy-

chically, and as soon as you are adjusted to them they are not too bad psychically.

References

1. Judd, E. S., Jr., and Bellegie, N. J., Carcinoma of Rectosigmoid and Upper Part of Rectum, Recurrence Following Low Anterior Resection. Arch. Surg. 64:697, 1952.
2. Lynn, D. H., The Relationship of Chronic Lesions to Carcinoma of the Colon—Chronic Ulcerative Colitis. Internat. Abstr. Surg. S.G. & O. 81:269, 1945.
3. Friesen, S. R., The Silent Interval in Gastric Cancer: A Study of the Time Elapsing Before Reassertion of Symptoms in Patients with Microscopic Malignancy in the Proximal Line of Excision and without Lymph Node Metastases. J. Nat. Cancer Inst. 10:545-549, 1949.

BLUE SHIELD

Variation in Medical Practice

It is not the method of enrollment, it is not the people, it is not the hospitals nor their charges but medical practice which seems to be the major cause of variation in the use of Blue Cross-Blue Shield services. This conclusion seems to be supported by a detailed study just completed on two counties in Kansas. The counties were similar in the following respects: hospital charges were approximately the same, the number of memberships studied was broad enough to afford a good basis of comparison, and only the employed group memberships in each county were studied.

The Blue Cross loss ratio (per cent of income paid directly for hospital service) for the past three years in the two counties was as follows:

	County A	*County B*
1949	93.47%	57.94%
1950	113.23%	65.36%
1951	106.62%	67.21%

The question naturally arose why two counties enrolled under very similar conditions should consistently demonstrate such wide differences in cost.

A detailed analysis of the experience of the two counties during the first six months of 1952 was made. The outstanding result was that County A showed a much higher incidence in both medical and surgical cases. The overall medical cases per thousand contracts in County A totaled 184 as compared with 108 cases per thousand in County B. County A had 192 surgical cases per thousand members as compared with 124 in County B.

Further analyzing the cause of the wide difference in medical cases, it was found that a large part of this difference occurred in the category of respiratory diseases. County A showed an incidence of 111 respiratory cases per thousand contracts as compared with only 35 such cases in County B. In other words, for each thousand contracts it was revealed that County A had over three times the rate of hospital admissions for respiratory cases as County B.

This difference would not be so significant were it not for the broad base of membership in the two counties, indicating that the figures were not influenced by the fluctuation in small numbers of people.

Similar wide differences in incidence were found in the surgical cases in the two counties. For example, County A had 90 per cent more surgery for conditions of the digestive system than did County B, 85 per cent more operations on the genito-urinary system and nearly two-and-one-half times the incidence in injuries.

To express this difference in terms of money, suppose that you were underwriting the cost of hospital care for a thousand people in County A and a thousand people in County B. On the basis of experience in the two counties, you would pay out $37,441 in hospital care in County A and $23,802 in County B.

Specific conclusions cannot be drawn from statistical information. Statistics can be used only as a guide to further study and more detailed analysis. However, these wide differences in utilization seem to point rather conclusively to the fact that there is a wide variation in medical practice in various areas. The difficulty that prepayment plans have is that of adjusting rates to the utilization of the various areas in which they operate. Kansas Blue Cross and Blue Shield operate on a state-wide basis and charge members the same rates regardless of where they live. However, if there continues to be a trend of wide differences in medical practice, the organizations will be faced with the problem of adjusting rates according to the utilization of the different areas. Otherwise, commercial competition, which tailor-makes its rates to suit the area, will be able to underprice Blue Cross-Blue Shield in the most favorable areas.

This information deserves the attention of the medical profession and should be followed to a much greater extent than the initial study has made possible.

Seventy foreign engineers and scientists from 35 nations throughout the world visited Parke, Davis and Company in Detroit recently, viewing latest techniques in the development and production of more than 1,000 different medicinals. The visitors included chemists, physicists, biologists, meteorologists, economists, architects, metallurgists, and electrical, mechanical, civil, chemical and construction engineers.

The group is part of the Massachusetts Institute of Technology's 1952 foreign student project. The participants have received an all-expense-paid summer of research and study at M.I.T.

COMMITTEES FOR 1952-1953

ALLIED GROUPS

G. E. Kassebaum, Chm., El Dorado; James J. Basham, Eureka; A. R. Chambers, Iola; R. D. Dickson, Topeka; L. B. Gloyne, Kansas City; P. B. Leffler, Pittsburg; Harry Lutz, Augusta; G. C. Meek, Arkansas City; R. R. Snook, McLouth; W. L. Speer, Osawatomie; F. E. Wrightman, Sabetha.

ANESTHESIOLOGY

H. J. Brown, Chr., Winfield; L. L. Bresette, Kansas City; H. H. Hyndman, Wichita; P. H. Lorhan, Kansas City; R. S. McKee, Leavenworth;; C. D. McKeown, Wichita; R. T. Parmley, Wichita; H. F. Spencer, Emporia; E. M. Sutton, Salina; F. C. Taggart, Topeka; M. M. Tinterow, Wichita.

AUXILIARY

C. T. Ralls, Chr., Winfield; J. A. Billingsley, Kansas City; M. A. Brawley, Frankfort; E. C. Bryan, Erie; J. E. Henshall, Osborne; F. A. Moorhead, Neodesha; R. E. Pfuetze, Topeka; L. J. Schaefer, Salina; I. J. Waxse, Oswego; C. O. West, Kansas City.

BLUE SHIELD FEE SCHEDULE

A. A. Fink, Chr., Pathology, Topeka; C. M. Barnes, General Practice, Seneca; W. L. Beller, Radiology, Topeka; P. D. Brown, Obstetrics and Gynecology, Salina; N. L. Francis, E.N.T., Wichita; G. F. Gsell, Eye, Wichita; A. G. Isaac, Urology, Newton; Dwight Lawson, Blue Shield, Topeka; W. O. Martin, Anesthesiology, Topeka; C. R. Rombolld, Orthopedics, Wichita; E. J. Ryan, Internal Medicine, Emporia; L. L. Saylor, Surgery, Topeka.

BLUE SHIELD RELATIONS

L. F. Glaser, Chr., Hutchinson; J. O. Austin, Garden City; O. R. Cram, Larned; A. J. Horejsi, Ellsworth; M. D. McComas, Jr., Concordia; G. E. Manahan, Lawrence; L. K. Nix, Wichita; F. L. Smith, Jr., Colby; H. F. Spencer, Emporia; O. H. True, Hays; E. T. Wulff, Atchison; R. S. Young, Fort Scott.

CHILD WELFARE

Mary S. Boyden, Chr., Lawrence; J. D. Beck, Topeka; D. R. Davis, Emporia; T. C. Hurst, Wichita; G. M. Martin, Topeka; D. N. Medearis, Kansas City; R. A. Nelson, Wichita; E. G. Padfield, Salina; Jack V. Sharp, Arkansas City.

CONSERVATION OF EYESIGHT

D. O. Howard, Chr., Wichita; E. E. Anderson, Kansas City; B. J. Ashley, Topeka; H. L. Bryant, Coffeyville; R. E. Cheney, Salina; A. M. Dougherty, Dodge City; C. H. Fain, Pittsburg; Glen Floyd, Winfield; J. E. Hill, Arkansas City; H. L. Kirkpatrick, Topeka; D. T. Loy, Great Bend; H. E. Morgan, Newton; D. P. Trimble, Emporia; K. W. Stock, Topeka.

CONSERVATION OF HEARING AND SPEECH

L. B. Spake, Chr., Kansas City; C. W. Armstrong, Salina; N. L. Francis, Wichita; J. A. Johnson, El Dorado; C. R. Kempthorne, Manhattan; E. E. Miller, Pittsburg; M. J. Rucker, Sabetha; G. E. Stone, Hutchinson; C. L. Woodhouse, Wichita.

CONSTITUTION AND RULES

A. W. Fegtly, Chr., Wichita; W. M. Brewer, Hays; H. E. Haskins, Kingman; J. L. Jenson, Colby; M. O. Steffen, Great Bend.

CONTROL OF CANCER

K. E. Voldeng, Chr., Wellington; J. P. Berger, Wichita; A. A. Fink, Topeka; J. J. Hovorka, Emporia; W. J. Kiser, Wichita; M. V. Laing, Kansas City; C. H. Miller, Parsons; O. F. Prochazka, Liberal; D. C. Reed, Wichita; R. H. Riedel, Topeka; C. D. Snyder, Winfield; R. E. Speirs, Dodge City; R. E. Stowell, Kansas City; J. T. Swanson, Independence; J. F. Thurlow, Hays; G. M. Tice, Kansas City; H. M. Wiley, Garden City; L. E. Vin Zant, Wichita.

CONTROL OF TUBERCULOSIS

W. G. Rinehart, Chr., Pittsburg; A. L. Ashmore, Wichita; Andre Baude, Topeka; F. E. Bishop, Atwood; H. L. Bogan, Baxter Springs; R. I. Canuteson, Lawrence; H. L. Hiebert, Topeka; R. H. Moore, Lansing; H. P. Palmer, Scott City; L. E. Strode, Girard; C. F. Taylor, Norton; F. A. Trump, Ottawa; C. J. W. Wilen, Manhattan.

EMERGENCY MEDICAL CARE

Donald P. Trees, Chr., Wichita; W. H. Algie, Kansas City; R. M. Carr, Junction City; R. W. Fernie, Hutchinson; G. F. Gsell, Wichita; G. W. Hammel, El Dorado; F. X. Lenski, Sr., Iola; J. M. Mott, Topeka; M. Snyder, Salina; V. A. Vesper, Hill City; W. G. Weston, Arkansas City.

ENDOWMENT

J. W. Randell, Chr., Marysville; F. K. Bosse, Atchison; G. H. Jackman, Cimarron; E. H. Terrill, Wichita.

EXECUTIVE

W. F. Bernstorf, Chr., Winfield; C. H. Benage, Pittsburg; L. R. Pyle, Topeka; J. L. Lattimore, Topeka; D. D. Vermillion, Goodland.

EXPERT TESTIMONY

C. E. Joss, Chr., Topeka; E. J. Frost, Wichita; J. L. Lattimore, Topeka; J. W. Spearing, Columbus; E. M. Sutton, Salina.

HISTORY

R. R. Melton, Chr., Marion; A. C. Gulick, Goodland; H. E. Haskins, Kingman; C. S. Huffman, Columbus; Alfred O'Donnell, Ellsworth; O. D. Walker, Salina.

HOSPITAL SURVEY

A. C. Armitage, Chr., Hutchinson; P. L. Beiderwell, Belleville; M. E. Christmann, Pratt; A. P. Cloyes, El Dorado; E. G. Dimond, Kansas City; E. R. Gelvin, Concordia; J. A. Howell, Wellington; O. W. Longwood, Stafford; R. M. Owensby, Mankato; G. E. Paine, Hutchinson; H. C. Sartorius, Garden City; F. C. Shepard, Clay Center; C. M. Smith, Sedan.

INDUSTRIAL MEDICINE

J. A. Grove, Chr., Newton; H. O. Anderson, Wichita; J. L. Beaver, Wichita; W. A. Grosjean, Winfield; C. W. Hall, Hutchinson; J. G. Hughbanks, Independence; E. S. Miller, Kansas City; H. L. Regier, Kansas City; R. W. Urie, Parsons; M. A. Walker, Kansas City; F. N. White, Russell.

INSURANCE

B. A. Nelson, Chr., Manhattan; D. H. Macrae, Topeka; M. B. Miller, Topeka.

MATERNAL WELFARE

D. E. Gray, Chr., Topeka; F. A. Allen, Newton; P. D. Brown, Salina; L. A. Calkins, Kansas City; H. C. Clark, Wichita; H. M. Floersch, Kansas City; R. G. Heasty, Manhattan; G. M. Martin, Topeka; H. S. O'Donnell, Ellsworth; R. A. Schwegler, Lawrence; R. A. West, Wichita.

MEDICAL ASSISTANTS

A. E. Hiebert, Chr., Wichita; K. J. Bierlein, Pittsburg; E. J. Grosdidier, Kansas City; J. A. Holmes, Lawrence; R. R. Preston, Topeka.

MEDICAL ECONOMICS

B. A. Nelson, Chr., Manhattan; C. M. Alderson, Dodge City; J. N. Blank, Hutchinson; A. W. Butcher, Wakefield; T. Dechairo, Westmoreland; R. L. Gench, Fort Scott; D. H. Macrae, Topeka; G. E. Milbank, Wichita; M. B. Miller, Topeka; C. V. Minnick, Junction City; L. S. Nelson, Jr., Salina; P. A. Petitt, Paola; E. L. Robinson, Independence; R. Sohlberg, Jr., McPherson; LeRoy Shepherd, Larned; H. L. Songer, Lincoln.

MEDICAL SCHOOLS

G. G. Whitley, Chr., Douglass; R. G. Ball, Manhattan; C. D. Behrhorst, Winfield; O. W. Davidson, Kansas City; H. W. Day, Kansas City; M. C. Eddy, Hays; C. A. Gripkey, Kansas City; A. C. Hatcher, Wellington; L. C. Hays, Cedarvale; A. L. Hilbig, Liberal; V. H. Hildyard, Baldwin; R. H. Maxwell, Wichita; R. C. Polson, Great Bend; M. J. Renner, Goodland; R. E. White, Garnett.

MENTAL HEALTH

L. W. Hatton, Chr., Salina; A. J. Adams, Wichita; R. L. Drake, Wichita; D. B. Foster, Topeka; T. L. Foster, Halstead; R. F. Freeman, Topeka; Mary T. Glassen, Phillipsburg; E. D. Greenwood, Topeka; C. C. Hawke, Winfield; C. J. Kurth, Wichita; W. C. Menninger, Topeka; J. T. Naramore, Larned; W. F. Roth, Jr., Kansas City; D. R. Wall, Wichita; M. E. Wright, Lawrence.

NECROLOGY

J. F. Gsell, Chr., Wichita; J. D. Colt, Sr., Manhattan; G. M. Gray, Kansas City.

NOMINATING

J. H. A. Peck, Chr., St. Francis; W. P. Callahan, Wichita: N. E. Melencamp, Dodge City; W. M. Mills, Topeka; H. N. Tihen, Wichita.

POSTGRADUATE STUDY

H. H. Jones, Chr., Winfield; C. M. Barnes, Seneca; M. H. Delp, Kansas City; L. E. Filkin, Concordia; E. L. Mills, Wichita.

PUBLIC HEALTH AND EDUCATION

C. W. Miller, Chr., Wichita; T. P. Butcher, Emporia; W. M. Cole, Wellington; C. C. Hunnicutt, Sabetha; A. J. Rettenmaier, Kansas City; L. W. Reynolds, Hays; D. L. Tappen, Topeka; R. P. Watterson, McPherson, M. W. Wells, Winfield.

PUBLIC POLICY

J. L. Lattimore, Chr., Topeka; and others.

RURAL HEALTH

J. H. A. Peck, Chr., St. Francis; L. E. Beal, Fredonia; F. H. Buckmaster, Elkhart; I. R. Burket, Ashland; D. C. Chaffee, Abilene; J. G. Claypool, Howard; J. C. Dysart, Sterling; J. T. Fowler, Osawatomie; L. G. Glenn, Protection; H. L. Graber, Hutchinson; A. J. Horejsi, Ellsworth; R. E. Jordan, Holton; J. F. Nienstedt, Beloit; Corbin Robison, Hoisington; E. A. Smiley, Junction City.

STORMONT MEDICAL LIBRARY

W. L. Valk, Chr., Kansas City; E. Beebe, Olathe; E. L. Kalbfleisch, Newton; E. B. McKnight, Alma; Roy Moser, Holton; C. M. Nelson, Oberlin; A. K. Owen, Topeka.

STUDY OF HEART DISEASE

P. W. Morgan, Chr., Emporia; D. R. Bedford, Topeka; P. M. Clark, Jr., Independence; K. L. Druet, Salina; C. W. Erickson, Pittsburg; L. H. Leger, Kansas City; F. J. McEwen, Wichita; G. L. Norris, Winfield; L. O. Peckenschneider, Halstead; J. M. Porter, Concordia; R. H. Riedel, Topeka; D. C. Wakeman, Topeka.

VENEREAL DISEASE

H. E. Neptune, Chr., Salina; M. L. Bauman, Wichita; W. Mau, Topeka; G. S. Voorhees, Leavenworth; V. M. Winkle, Topeka.

VETERANS ADMINISTRATION AFFAIRS

Spencer Fast, Chr., Atchison; R. E. Capsey, Centralia; E. R. Hill, Lyons; Kenneth Hunter, Lebo; M. W. Hall, Wichita.

ACTIVITIES OF MEMBERS

Dr. Frank Lenski, Iola, announces that his daughter, Dr. Marita Scimeca, is now associated with him in practice. Dr. Scimeca is a graduate of the University of Kansas School of Medicine and recently completed her internship at St. Mary's Hospital, Kansas City, Missouri.

* * *

Dr. D. S. Roccaforte, Hanover, was recently commissioned a first lieutenant in the Air Force Reserves and expects to be called to a two-year term of duty this fall.

* * *

The Eddy Clinic, Hays, announces that Dr. Glen C. Hutchison is now a member of its staff and will practice general medicine. Dr. Hutchison was graduated from the University of Kansas School of Medicine, served his internship in the U. S. Navy Hospital at St. Albans, New York, and served a general practice residency at St. Luke's Methodist Hospital, Cedar Rapids, Iowa.

* * *

Dr. A. Mary Hayden, Fredonia, is now touring Europe with a group of women physicians. The tour, with stops in England, the Netherlands, France, Switzerland, Germany and Austria, is sponsored by the Medical Women's International Association.

* * *

The Cook County Graduate School of Medicine, Chicago, announces that Dr. Edgar H. Beahm, Independence, and Dr. N. C. Siebert, Wichita, were enrolled for postgraduate courses last month.

* * *

The Randles Clinic, Fort Scott, announces that Dr. Albert M. Ridlon, who was a 1951 graduate of the University of Kansas School of Medicine, is now a member of the staff. He recently completed his internship at St. Mary's Hospital, Kansas City, Missouri.

* * *

Dr. John A. Holmes, Lawrence, has announced that he is leaving his Kansas practice to become medical director of the Corning Glass Works, Corning, New York. He began his new work on October 7.

* * *

Dr. William Kenneth Smith, who has been practicing in Sedan for the past three years, announced recently that he is moving to Clermont, Florida, to open an office there.

* * *

Dr. Frederick P. Wolff, Pratt, who is a member of the naval reserve, received word recently that he will soon be recalled to active duty.

* * *

Dr. Vernon L. Weeks, Arkansas City, has been named civilian consultant for the medical services at Wichita Air Force Base.

* * *

Dr. Ralph R. Clutz, Bendena, was the subject of a feature story published in the Kansas City Times, September 18. Dr. Clutz has completed 50 years of practice in Bendena.

* * *

Dr. Robert N. Shears, Hutchinson, has received word that he will soon be recalled to active duty with the Navy, probably in November.

In 1930, the pharmaceutical industry was realizing annual sales of less than 150 million dollars; the surgical supply industry (including surgical and medical supplies, and surgical appliances and supplies) had annual sales of less than 65 million dollars. That was in 1930.

Twenty-one years later, in 1951, the pharmaceutical industry realized sales of over 726 million dollars. That's a five-fold increase! Last year, the surgical supply industry had sales of over 360 million dollars. That's an increase of five and a half times! —*B. W. Carey, Director, Lederle Laboratories, addressing American Surgical Trade Association.*

In Detroit, a five-year program for the control of tuberculosis cost $200,000 a year, and saved $1,400,000 a year in sanatorium costs alone.—*The Cost of Sickness and the Price of Health, WHO Monograph Series, No. 7, 1951.*

Senior Thesis from the University of Kansas Medical School*

The Effect of Hyperventilation on Cerebrovascular Physiology

William Arthur**
Kansas City, Kansas

If a new drug were to be introduced which produced even a fraction of the changed physiology that occurs during hyperventilation, there would be great argument about its therapeutic usefulness.[30] The dominant actions of such a drug would be studied assiduously. Side effects would be discussed along with questions of individual susceptibility. Toxicology and appropriate dosages would be seriously considered.

The physician reading an electrocardiogram would want to know if the patient had been taking this drug. Psychiatrists would find some patients who were able to reach a borderline adjustment prior to taking the drug being totally unable to cope with their problems until the drug was discontinued. It is even possible that the question of addiction to the drug would arise. Neurologists would note electroencephalogram changes, and the drug would be used diagnostically to precipitate epileptic patterns. Some patients there would be, inevitably, who would have to be desensitized before the drug could be used in full dosage.

Of course no such new drug has been discovered. Nor is there likely to be a search for such an agent. However, recent work on cerebral physiology has shed new light on the marked changes which occur during hyperventilation itself. This paper then, if a certain loose usage may be allowed, is a study of the pharmacology of hyperventilation.

Clinical Hyperventilation

The term hyperventilation implies excessive respiration with an increased loss of carbon dioxide from the blood. This may follow increased respiratory rate, depth, or both.[6] Hyperventilation occurs clinically due either to psychogenic factors, or to organic diseases of the central nervous system. During an emotional situation the patient with this "sighing dyspnea"[6] will want more air than he can get, and he will attempt to gulp down more, faster. For centuries, the association of hyperventilation with marked emotional and mental disturbances has been recognized.[16] Since the turn of the present century, the physiologic background of these mental and emotional changes has been explored. It has been shown that this disturbed physiology affects the heart, the lungs, the nervous system, and the circulatory system.

During hyperventilation there are electrocardiographic changes which resemble those of coronary insufficiency.[35, 7] The tetany which is produced must be differentiated from that of hypocalcemia. There is a slowing of the electroencephalogram during hyperventilation, and epileptic convulsions may be precipitated in susceptible persons. The mental confusion resulting from hyperventilation is severe, and the marked behavioral changes must be differentiated from those produced by brain damage and by psychotic states. In a patient with organic brain disease, or a cerebral vascular accident, the changes due to hyperventilation are superimposed upon the changes due to the existing pathology.

More frequently, however, should the symptoms be less disabling, the patient may react to his strange experience of numbness, tingling, and mental confusion with considerable fear and anxiety. In view of the clinical signs of cerebral anoxia due to hyperventilation alone, the importance of the recent work on cerebrovascular physiology becomes obvious.

Experiments on Normal Persons

Kety and Schmidt introduced the nitrous oxide method for determining cerebral blood flow in 1945.[22] This made possible a large number of experiments showing the changed physiology during hyperventilation. One of the results of this method has been the demonstration of the marked decrease in cerebral blood flow during forced breathing. Correlated with other recent work, an interpretation of the changes in hyperventilation based on demonstrable physiologic changes becomes possible.

An understanding, on the part of the patient that the effects of hyperventilation occur in perfectly normal persons would do much to alleviate the anxiety associated with the hyperventilation syndrome. This would leave only the symptoms due to the physiologic changes. It is the mechanism of this disturbed physiology which we wish to explore, particularly as it affects the cerebrovascular system.

Factors Controlling Cerebral Circulation

The important controlling mechanisms of cerebral circulation are those which affect the cerebral vessels intracranially. The cerebral circulation is, of course, also subject to changes in systemic and pulmonary circulation. The arterial pressure head to the brain, the amount of resistance to flow of blood through the brain, and the venous return from the brain all interact to govern cerebral blood flow.

*This is one of 11 senior theses selected for publication by the Editorial Board from a group of 15 judged the best by the faculty of the University of Kansas School of Medicine.

**Senior Student, University of Kansas School of Medicine.

During hyperventilation there is considerable flux in the general circulation. The pooling of blood in the pulmonary circuit,[1] the action of the thoracic pump,[13] and the tachycardia are all examples of changed physiology in the circulatory system when hyperventilation occurs. Changes in cerebrospinal fluid pressure, and in the viscosity of the blood, also affect the circulation through the brain.

However, the homeostatic mechanisms which maintain a relatively constant blood flow, tend to insure an adequate head of pressure to the cerebral circulation. Examples of such mechanisms are the carotid sinus reflex and the cerebral control of peripheral vascular tone. The intracranial pressure does not embarrass the cerebral circulation until a critical level of about 450 mm. of water is reached.[26] The venous return from the brain is provided by such an ample number of communicating channels that occlusion of one or another is not usually a source of embarrassment.[18]

Therefore, even during hyperventilation, the flux in systemic and pulmonary circulation has relatively little effect on cerebral blood flow under the usual circumstances. The changes in cerebral blood flow are governed then, by the change in the vascular resistance which occurs within the brain. This is true as long as a critical minimum level of systemic blood pressure is maintained.[18]

Cerebral Vascular Resistance

The concept of cerebral vascular resistance implies that as the cerebral vessels become narrower, more systemic pressure is required to produce a constant blood flow. Or, from another point of view, as the resistance to blood flow rises, then cerebral blood flow decreases as long as the systemic blood pressure remains constant. Cerebral vascular resistance then, is calculated by dividing the systemic blood pressure by the cerebral blood flow.

Method of Measurement

Of the various methods of measuring cerebral blood flow, the nitrous oxide method has recently drawn considerable attention. The subject breathes a non-anesthetic mixture of nitrous oxide. This gas goes into the blood in the lungs and is carried to the brain in the systemic circulation. Part of the gas is left in the brain so that the venous jugular blood initially contains less nitrous oxide than does arterial blood. By appropriate determinations and calculations, the cerebral blood flow per 100 grams of brain tissue can be calculated. A mean value for cerebral blood flow of 54 cc. per 100 grams of brain tissue per minute has been established by this method for normal young men.[24]

Once the cerebral blood flow is known, the cerebral vascular resistance can be calculated. The cerebral vascular resistance, in turn, depends upon all of the factors which may change the caliber of the cerebral vessels. The factors which have the most influence on the caliber of cerebral vessels are the chemical constituents of the blood.

The Influence of Oxygen, Carbon Dioxide, and Blood pH on the Cerebral Circulation

As hyperventilation produces a change in the blood carbon dioxide tension, resulting in alkalosis, it is necessary to consider the effect of this change on the cerebral circulation.

Inhalation of a mixture containing 10 per cent oxygen produces an increase in cerebral blood flow.[25] On the other hand, oxygen inhaled in concentrations of from 85 to 100 per cent reduces cerebral blood flow. These changes in the vascular resistance imply a change in the caliber of the cerebral vessels.

Carbon dioxide inhaled in concentrations of from 5 to 7 per cent produces an increase in the cerebral blood flow. Conversely, a decrease in blood carbon dioxide produced by hyperventilation reduces cerebral blood flow.

The cerebral vasoconstriction produced by hyperventilation may be due entirely to the alkalosis which accompanies the lowered carbon dioxide tension. Patients in diabetic coma, in whom *acidosis* exists along with decreased carbon dioxide tension, respond with cerebral *vasodilation*. This suggests that during a change in the carbon dioxide of the blood, it is the blood pH alone which is responsible for the change of tone of the cerebral vessels.[18]

Chemical Changes During Hyperventilation

In normal persons the alveolar pCO_2, and therefore the pCO_2 of the arterial blood, is about 40 mm. of mercury.[36] Hyperventilation can reduce the carbon dioxide tension of the alveolar air to about one-half of the normal value.[6] This lowers the carbon dioxide tension of arterial blood, and increases the arterial blood pH. This change in blood pH is due to blowing off of the volatile acid component of the bicarbonate buffer system, leaving a relative excess of bicarbonate.[8]

The compensatory mechanisms which eventually restore the 20:1 ratio of bicarbonate to acid do not prevent the immediate effects of hyperventilation.[2] One of these immediate effects is a marked constriction of cerebral vessels, and cerebral blood flow is reduced by one-third.[23]

Hyperventilation and Oxygen Uptake

One of the startling results occurring during this process was shown by measurements of cerebral oxygen uptake. Even when cerebral blood flow is markedly reduced by hyperventilation, and when clinical signs of cerebral anoxia are demonstrable, measurements show that cerebral oxygen consump-

tion is actually increased.[18] This phenomenon will be discussed along with the relationship of cerebral blood distribution to brain cell metabolism. It remains, however, that cerebral vasoconstriction is one of the most important results of hyperventilation.

Hyperventilation and Tetany

The total calcium of the blood does not change during hyperventilation. However, the increased alkalinity of the blood may lower the available or ionized calcium of the blood.[29, 6] The patient notices a sensation of tingling which begins peripherally in the tactile fibers. This is followed by a feeling of tension as the activity spreads to other afferent fibers. About the same time fasciculation occurs as the activity reaches the motor fibers. "Direct excitation of the motor nerve fibers produces the motor discharge in tetany."[27]

Neurogenic Influences on the Cerebral Circulation

Hyperventilation, as seen in patients, is frequently associated with anxiety and neurotic states. As the total organism is involved in the emotional response to the symptoms of hyperventilation, a consideration of neurogenic and of hormonal influences should be taken up.

The effect of neurogenic control on cerebral circulation has long been the subject of much controversy and speculation. Conflicting theories are due mainly to the discrepancy between anatomical and physiological findings. Anatomically, the cerebral vessels are supplied with symptomatic and vasodilator fibers. Physiologically, the ability of these elements to produce significant caliber change in the cerebral vessels of man has been questioned.

According to Forbes, stimulation of the cervical sympathetic fibers will cause some vasoconstriction in the pial vessels of animals.[11] In man, however, this mechanism is weak if present at all.[10]

Pickering questions the ability of the thin walled, weakly muscled cerebral vessels of man to react strongly to constrictor stimuli.[28] Even in the animal experiments, the constriction of the pial vessels is insignificant compared with the constriction of skin vessels.[11] Epinephrine applied locally to the animal's cerebral arteries results in slight constriction. Intravenous injection of epinephrine, however, raises the systemic arterial pressure and the pial arteries are passively dilated in animals.[11]

Elsewhere in the body of man, where the vascular tone is known to be under the control of the sympathetic nervous system, there is considerable variation of blood flow. The relative constancy of cerebral blood flow, on the other hand, would be evidence against any considerable sympathetic nervous system control of cerebral vascular tone.[31]

Further, procaine block of the stellate ganglion apparently produces no relaxation of cerebral vessels that can be measured in terms of increased cerebral blood flow.[14] The evidence cited indicates that whatever the effect of neurogenic mechanisms on cerebral blood flow, they are insignificant when compared to the striking effects produced by the chemical blood substances.[18]

Physiologically therefore, the considerable change in cerebral blood flow during hyperventilation can be measured and logically attributed to cerebral vasoconstriction.[25] These physiological findings coincide with the clinical evidence of cerebral anoxia. It is the changed blood chemistry, however, and not the neurogenic influences, that produces the changed physiology during hyperventilation.

Hormonal Influences

Hormonal influences on cerebrovascular tone have been postulated to explain the generalized vasoconstriction in essential hypertension. The hypertension could arise first by a constriction of cerebral vessels. Then the systemic pressure would increase secondarily to overcome the elevated cerebral vascular resistance and insure adequate blood supply to the brain.[19] No significant increase in systemic blood pressure occurs during the increased cerebral vascular resistance of voluntary hyperventilation.[34] These events in essential hypertension are therefore attributed to hormonal control.[18]

This mechanism has been suggested in view of the weak sympathetic tone of the cerebral vessels. Hypertensive patients require twice the systemic blood pressure to produce the same flow of blood through the brain as required in the normal brain.[19] For this reason, among others, the indiscriminate use of powerful hypotensive agents can be dangerous.

For other evidence of hormonal influence, the use of ACTH and cortisone results in increased cerebral vascular resistance and reduced cerebral blood flow.[33] Thyroid therapy will increase cerebral metabolism and cerebral blood flow in patients with myxedema.[33] The use of an adenergic blocking agent (dihydroergocornine), which reduces systemic blood pressure in essential hypertension, is followed by a relaxation of cerebral vessels.[12] Reduction of the systemic blood pressure alone by differential spinal sympathetic block also decreases cerebral vascular resistance.[20]

The Hyperventilation Syndrome

The emotionally aroused individual provides abundant opportunity for the study of the activity of the autonomic and hormonal influences. Thus, Cannon has called attention to the action of the sympathetic nervous system in emotional situations.[5]



THE COUNCIL-ACCEPTED USES OF

Dramamine®

NOW ARE:

SYMPTOMATIC CONTROL OF NAUSEA AND VOMITING ASSOCIATED WITH	*pregnancy* *therapy with certain drugs (antibiotics, etc.)* *electroshock therapy* *narcotization*
MANAGEMENT OF VERTIGO IN	*Ménière's syndrome* *radiation sickness* *hypertension* *fenestration procedures* *labyrinthitis*
MANAGEMENT OF VESTIBULAR DYSFUNCTION ASSOCIATED WITH	*Streptomycin therapy*

Tablets: 50 mg. each
Liquid: 12.5 mg. in each 4 cc.

—and, of course, MOTION SICKNESS

Dramamine®

BRAND OF DIMENHYDRINATE

SEARLE

RESEARCH IN THE SERVICE OF MEDICINE

He notes that the "excitement which stops gastric digestion, makes the heart beat more rapidly and raises the blood pressure by contracting the blood vessels."

The cerebral vessels, however, apparently are not strongly constricted by such stimuli. Forbes, by observation of the pial vessels through a window in the skull of an animal, concluded that under the stress of strong emotion, cerebral blood flow can increase without hindrance from the cerebral vasomotor apparatus.[11]

Therefore, when hyperventilation is superimposed upon an emotional state, several opposing factors are brought into action. Kerr, in 1937, combined the clinical results of these several factors under the term, "Hyperventilation Syndrome."[16] These patients are described by Kerr as persons whose chief response is through the sympathetic system. From the sympathetic response can be traced the release of adrenalin. From this occurs cerebral cortical stimulation producing hyperventilation and cardiac acceleration by central action. Hyperventilation adds mental confusion and muscular twitching to this picture.

The symptoms shown by a patient with the hyperventilation syndrome are therefore a resultant of simultaneous effects which are chemical, neurogenic, and hormonal in origin. To this there is the added factor of the patient's individual reaction to this unusual experience.

It has been suggested that fear and anxiety lead to hyperventilation and that the alarming sensations following hyperventilation lead to fear and anxiety. In spite of the multitude of factors involved in emotional hyperventilating, however, the dominant effects on the cerebral vascular system seem still to be the powerful influence of acid-base disturbance in the production of cerebral anoxia.

Cerebral Metabolism and Cerebral Blood Flow

The vital function of all the mechanisms thus far mentioned is, of course, to deliver a supply of blood to the brain. The tissue requirement for blood is itself a factor in the regulation of cerebral blood flow.[33] Therefore all of the mechanisms are in delicate balance to adjust cerebral blood flow in response to the demands of cerebral metabolism. This produces a positive correlation between cerebral metabolism and cerebral blood flow.[17]

Brain tissue cells themselves act to make up deficiencies in this adjustment. Thus, under most circumstances, when cerebral blood flow is decreased, the brain tissue increases its extraction of oxygen from the blood. This allows cerebral metabolism to remain normal. In fact, as long as cell function remains normal, blood flow may be decreased up to 21 per cent and still be compensated by increased uptake of oxygen from what blood supply remains.[31] This compensatory mechanism is demonstrated in heart failure.

During active hyperventilation, the cerebral vascular resistance increases and cerebral blood flow is reduced. However, in the presence of active brain cells, the cerebral oxygen consumption is actually increased during hyperventilation.[23] This illustrates the ability of normal brain tissue to secure its quota of oxygen and glucose despite decreased cerebral blood flow.

This means that increased metabolism of the brain cells raises a demand for a greater blood supply. Through some mechanism, the carefully balanced control factors are changed to allow a greater blood flow. Meanwhile the brain cells take up the slack by increased extraction of necessary blood constituents. On the other hand, when cerebral metabolism is decreased, there is a shift among the mechanisms which allows cerebral blood flow to be decreased.

When there is disease of the brain cells, the metabolic control of cerebral blood flow is not so evident. However, in the hyperventilation which is initiated by organic brain disease, or by cerebral vascular accidents, the effects of hyperventilation are added to whatever neurologic deficit already exists, and the blood chemistry changes are superimposed upon the existing blood picture.

Hyperventilation and Cerebral Metabolism

When brain cell metabolism is using up the oxygen, and the cerebral blood flow is decreased, signs of cerebral anoxia appear. This situation occurs during hyperventilation. The result is a severe derangement of cerebral function. There is a slowing of the frequency of the electroencephalogram along with the reduction of awareness during hyperventilation.[29]

The manifestations of cerebral deterioration take place in roughly inverse phylogenetic order. The processes of reasoning, judgment, and attention span are more labile in this respect, being followed finally by a partial release of cortical control over the basal ganglia with the production of athetoid movements in certain individuals.[30] Light headedness, dizziness, release of muscle tonus, over-response to affective stimuli, blurring of vision, stupor, syncope, all are referable to the disturbed function of the cerebral cortex.[15, 16, 29, 30]

This cerebral anoxia is due to the respiratory alkalosis which depresses the release of oxygen from hemoglobin,[29] or reduces cerebral blood flow,[18] or does both.[6] However, we have yet to account for the fact that in spite of the decreased cerebral blood flow during hyperventilation, the cerebral oxygen consumption is actually increased.

This increase in cerebral oxygen consumption is

Salient facts on the new antituberculous drug...

NYDRAZID

Squibb Isoniazid

	what is known	*what is not known*
Antituberculous effect	Nydrazid has greater potency against the tubercle bacillus than any other known compound, both in vitro and in experimental animals. Clinical results are encouraging. The effect on fever and general status is often dramatic. Roentgenographic improvement occurs often, but is generally slower than in patients treated with streptomycin.	It is too early to predict what the long-term effect of Nydrazid will be. Presumably chronic lesions will not respond better than they do to streptomycin, except insofar as Nydrazid penetrates better. Nydrazid and streptomycin appear to have additive effect in vitro, but it is not known how effective such a combination will be in clinical practice.
Bacterial resistance	Tubercle bacilli with increased resistance to Nydrazid have been isolated from patients. Resistant organisms can also be cultured in vitro, but this phenomenon is virtually eliminated when cultures are exposed to streptomycin and Nydrazid simultaneously.	The clinical implications of bacterial resistance are not completely known. Patients harboring resistant organisms may continue to improve under treatment. The question of delaying the emergence of resistant bacilli by combined therapy must await further study.
Toxicity	Toxic reactions to Nydrazid are chiefly due to stimulation of the central nervous system. They are negligible in the therapeutic dose range, except in patients with convulsive tendencies.	It appears probable that central nervous reactions to Nydrazid can be controlled by barbiturates. But with continued use of the drug, it is not known what sensitivity reactions may occur.

Nydrazid is supplied in 50 and 100 mg. scored tablets, bottles of 100 and 1000.

For further information on Nydrazid send for the Nydrazid Abstract Folder.

SQUIBB

"NYDRAZID" IS A TRADEMARK OF E. R. SQUIBB & SONS

E. R. SQUIBB & SONS
745 Fifth Avenue
New York 22, N. Y.

Please send me a copy of the Nydrazid Abstract Folder.

NAME_____

ADDRESS_____

CITY_____ STATE_____

Dept. B

due to actual increase in cerebral metabolic activity.[23] The explanation for this is that the clinical manifestations of hyperventilation are signs of cortical impairment, and do not necessarily imply depressed function of the entire brain.[23] Oxygen uptake is measured in terms of the entire brain.

The increased ability of brain tissue to extract oxygen sufficient for its needs in the face of reduced cerebral blood flow has been noted in certain disease states. However, it is nowhere implied that cortical and subcortical tissues share this function equally. The decreased oxygen uptake by the cortical tissue is obscured by the overactive oxygen uptake of subcortical tissues. Metabolic activities of *parts* of the brain must therefore be deduced from the clinical findings, and it is possible for increased metabolism of the brain as a whole to co-exist with signs of severe cortical anoxia.

Hyperventilation, by both clinical and experimental evidence, profoundly affects the delicate balance of cerebral metabolic activities. It does this by reducing the cerebral blood flow and forcing the brain cells to extract as much oxygen as they can from this reduced flow. The cortical cells fall behind in this process, and the clinical picture of cerebral anoxia results. Hyperventilation also changes the character of the blood that is delivered to the brain through its effect on acid-base balance.[3]

The Pharmacology of Hyperventilation

The organ through which the effect of hyperventilation gains access to the body is the lung. This would correspond to the absorption of a drug. The dominant actions of hyperventilation within the body are due to the alkalosis of the blood. These dominant actions cause a shift in the balance of metabolic activities, particularly in the brain. Side actions of hyperventilation are those of tetany and tachycardia. Sometimes the side actions produce a more striking picture than does the dominant action. One does not, however, lose sight of the dominant action of a drug on this account.

There seem to be individual variations in susceptibility to hyperventilation, and some persons react emotionally to its effects. There seems to be no element of tolerance developed—chronic hyperventilators are just as susceptible to the effects after long usage as they were in the beginning. Tolerance is acquired only through disease states such as severe emphysema in which there is no ventilatory control over carbon dioxide tension and pH of the blood.[36] Toxic effects, as represented by cerebral anoxia, are completely reversible and leave no residual even after prolonged hyperventilation.

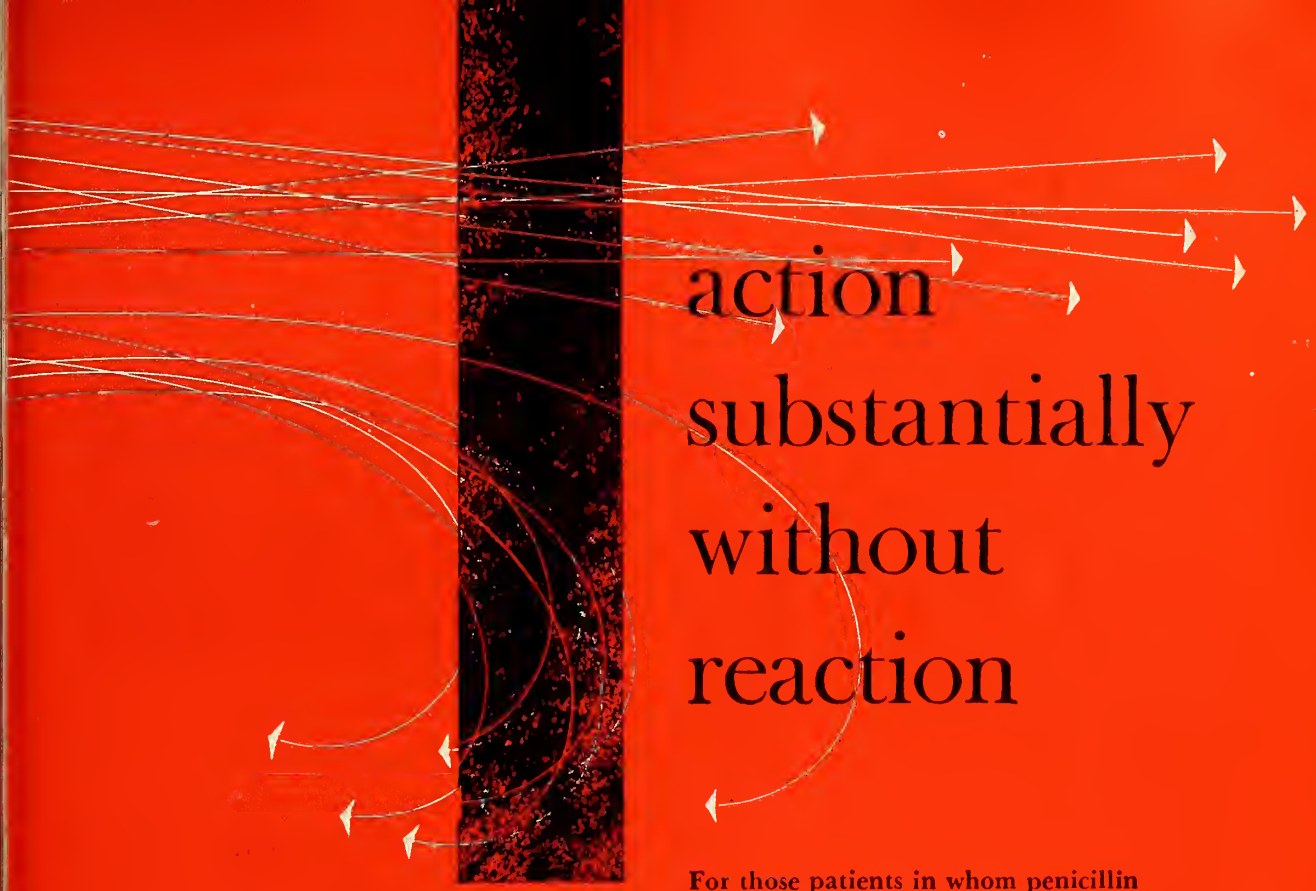
The excretion of many drugs takes place through the kidneys. Correspondingly, the kidneys compensate for the effects of hyperventilation by the increased excretion of bicarbonate in an effort to restore the 20:1 ratio of bicarbonate to acid in the blood.[4]

The effects of hyperventilation may be immediately antagonized by retention of carbon dioxide. This may be done by holding the breath in a manner analogous to Cheyne-Stokes respiration. Antagonism may also be accomplished by rebreathing air within a paper bag held over the face. More elaborately, the symptoms may be relieved by administering a gas mixture containing 5 per cent carbon dioxide.

In many instances, a patient may not know that a drug he is taking is causing his symptoms. A patient who is hyperventilating also may not know what is causing his symptoms. These patients with sighing and gasping respiration as a response to emotional distress need advice in the method of withdrawing or antagonizing the effects of hyperventilation. The patient who is hyperventilating in response to a cerebral vascular accident will need a more active program to repress the symptoms of hyperventilation. After the symptoms are repressed, this leaves a residue of symptoms arising from the brain damage itself. Likewise, the emotional patient, when relieved of the symptoms of hyperventilation, still has a residue of symptoms arising from the emotional problems. However, withdrawal and antagonism in both instances remove the agent without which the underlying source of difficulty may be more adequately treated.

The question might arise as to whether hyperventilation has any useful function for the patient. The answer to this is that it probably does have some value for the patient. It has the same value as other temporarily decorticating agents in loosening the patient from the perception of a painful environment. Hyperventilation produces emotional problems of its own, but it also damps the patient's appreciation of his usual problems through the mechanism of cortical anoxia. This procedure is not unlike the use of alcohol which may also be said to have a certain value from the viewpoint of the consumer. It is only when the use of alcohol becomes a problem that treatment is sought. The same applies to hyperventilation.

The question might also arise as to whether the drug effects of hyperventilation have any useful application analogous to the proper use of other drugs. The answer is yes. In aviation medicine the study of this problem in relation to oxygen supply, atmospheric pressure, gravity force, and other considerations too complex for consideration here, indicates a proper time and place for the use of hyperventilation.



action substantially without reaction

For those patients in whom penicillin G causes sensitivity reaction, Cer-O-Cillin provides the same antibiotic action but is substantially free from side effects in most cases.

Upjohn researchers developed Cer-O-Cillin (penicillin O) by replacing the benzyl group of penicillin G with an allylmercaptomethyl group, thus making penicillin therapy available to nearly *all* patients.

For action substantially without reaction . . .

Cer-O-Cillin*

ACCEPTED COUNCIL OF PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

POTASSIUM

POTASSIUM PENICILLIN O (ALLYLMERCAPTOMETHYL PENICILLIN)

*Trademark

a product of **Upjohn Research** *for medicine . . . produced with care . . . designed for health*

THE UPJOHN COMPANY, KALAMAZOO, MICHIGAN

Summary

The effects of hyperventilation are in many respects analogous to drug action on the total organism. These are conditions under which these effects are useful therapeutically (aviation), and diagnostically (epilepsy). For the most part the effects are undesirable, however, both from the physician's and from the patient's point of view. The use of hyperventilation is initiated without much awareness on the part of the patient as to the reasons for that use. The withdrawal of hyperventilation solves only the problems created by hyperventilation. This withdrawal is necessary, however, to produce optimal conditions for further treatment whether the underlying problem be organic or functional in nature.

This concept of the drug-like action of hyperventilation has been presented as a frame-work for the study of the dominant action which is the effect of hyperventilation on cerebrovascular physiology.

Bibliography

1. Armitage, G. H., and Arnott, W. M., Effect of Voluntary Hyperpnoea on Pulmonary Blood Flow, J. Physiol., 109:64-69, Aug. 1, 1949.

2. Boutwell, J. H., Farmer, C. J., and Ivy, A. C., Studies on Acid-Base Balance Before and During Repeated Exposure to Altitude, or to Hypoxia and Hyperventilation, J. Applied Physiol., 2:381-387, Jan., 1950.

3. Brown, E. B., Jr., Changes in Brain pH Response to CO_2 After Prolonged Hypoxic Hyperventilation, J. Applied Physiol., 2:549-552, April, 1950.

4. Brown, E. B., Jr., Hemingway, A., and Visscher, M. B., Arterial Blood pH and pCO_2 Changes in Response to CO_2 Inhalation After 24 Hours of Passive Hyperventilation, J. Applied Physiol., 2:544-548, April, 1950.

5. Cannon, W. B., The Mechanism of Emotional Disturbance of Bodily Functions, New Eng. Journ. Med., 198:877-844, 1928.

6. Carryer, H. M., The Hyperventilation Syndrome, Med. Clinics N. Amer., 31:845-849, July, 1947.

7. Christensen, B. C., Studies on Hyperventilation., II. Electrocardiographic Changes in Normal Man During Voluntary Hyperventilation, J. Clin. Inves., 25:880-889, Nov., 1946.

8. Davenport, H. W., "The ABC of Acid-Base Chemistry," 2nd Ed., Chicago, The University of Chicago Press, 1949, Pages 39-44.

9. Engel, G. L., Ferris, E. B., and Logan, M., Hyperventilation: Analysis of Clinical Symptomatology, Ann. Int. Med., 27:683-704, 1947.

10. Forbes, H. S., Physiologic Regulation of the Cerebral Circulation, Arch. Neurol. & Psychiat., 43:804-814, April, 1940.

11. Forbes, H. S., Finley, K. H., and Nason, G. I., Cerebral Circulation: XXIV, A. Action of Epinephrine on Pial Vessels; B. Action of Pituitary and Pitressin on Pial Vessels; C. Vasomotor Responses in the Pia and Skin, Ibid, 30:957-979, Nov., 1933.

12. Hafkenschiel, J. H., Crumpton, C. W., Moyer, J. H., and Jeffers, W. A., The Effects of Dihydroergocarnine on the Cerebral Circulation of Patients with Essential Hypertension, J. Clin. Inves., 29:408-411, April, 1950.

13. Hamilton, W. F., Woodbury, R. A., and Harper, H. T., Jr., Arterial, Cerebrospinal, and Venous Pressures in Man During Cough and Strain, Am. J. Physiol., 141:42-50, March, 1944.

14. Harmel, M. H., Hafkenschiel, J. H., Austin, G. M., Crumpton, C. W., and Kety, S. S., The Effect of Stellate Ganglion Block on the Cerebral Circulation in Normotensive and Hypertensive Patients, J. Clin. Inves., 28:415-418, May, 1949.

15. Hull, O. B., Hyperventilation Syndrome, G. P., 2:53-57, Sept., 1950.

16. Kerr, W. J., Dalton, J. W., Gliebe, P. A., Some Physical Phenomena Associated With the Anxiety States and Their Relation to Hyperventilation, Ann. Int. Med., 11:961-992, Dec., 1937.

17. Kety, S. S., the Physiology of the Human Cerebral Circulation, Anesthesiology, 10:610-614, Sept., 1949.

18. Idem, Circulation and Metabolism of the Human Brain in Health and Disease, Am. J. Med., 8:205-217, Feb., 1950.

19. Kety, S. S., Hafkenschiel, J. H., Jeffers, W. A., Leopold, I. H., and Shenkin, H. A., The Blood Flow, Vascular Resistance, and Oxygen Consumption of the Brain in Essential Hypertension, J. Clin. Inves., 27:511-514, July, 1948.

20. Kety, S. S., King, B. D., Horvath, S. M., Jeffers, W. A., and Hafkenschiel, J. H., The Effects of an Acute Reduction In Blood Pressure By Means of Spinal Sympathetic Block on the Cerebral Circulation of Hypertensive Patients, J. Clin. Inves., 29:402-407, April, 1950.

21. Kety, S. S., Polis, B. D., Nadler, C. S., and Schmidt, C. F., The Blood Flow and Oxygen Consumption of the Human Brain in Diabetic Acidosis and Coma, J. Clin. Inves., 27:500-510, July, 1948.

22. Kety, S. S., and Schmidt, C. F., The Determination of Cerebral Blood Flow in Man by the Use of Nitrous Oxide in Low Concentrations, Am. J. Physiol., 143:53-66, Jan., 1945.

23. Idem, The Effects of Active and Passive Hyperventilation on Cerebral Blood Flow, Cerebral Oxygen Consumption, Cardiac Output, and Blood Pressure of Normal Young Men, J. Clin. Inves., 25:107-119, Jan., 1946.

24. Kety, S. S., and Schmidt, C. F., The Nitrous Oxide Method for Quantitative Determination of Cerebral Blood Flow in Man: Theory, Procedure, and Normal Values, J. Clin. Inves. 27:476-483, July, 1948.

25. Idem, The Effects of Altered Arterial Tensions of Carbon Dioxide and Oxygen on Cerebral Blood Flow and Cerebral Oxygen Consumption of Normal Young Men, J. Clin. Inves., 27:484-492, July, 1948.

26. Kety, S. S., Shenkin, H. A., and Schmidt, C. F., The Effects of Increased Intracranial Pressure on Cerebral Circulatory Functions in Man, J. Clin. Inves., 27:493-499, July, 1948.

27. Kugelberg, E., Activation of Human Nerves by Hyperventilation and Hypocalcemia, Arch. Neurol. & Psychiat., 60:153-164, Aug., 1948.

28. Pickering, G. W., Transient Cerebral Paralysis in Hypertension and in Cerebral Embolism, J.A.M.A., 137:423-430, May 29, 1948.

29. Rice, R. L., Symptom Patterns of the Hyperventilation Syndrome, Am. J. Med., 8:691-700, June, 1950.

30. Rosett, J., The Experimental Production of Rigidity, of Abnormal Involuntary Movements and of Abnormal States of Consciousness in Man., Brain, 47:293-336, 1924.

31. Scheinberg, P., Cerebral Blood Flow in Vascular Disease of the Brain, Am. J. Med., 8:139-147, Feb., 1950.

32. Idem, Cerebral Circulation in Heart Failure, Am. J. Med., 8:148-152, Feb., 1950.

33. Scheinberg, P., and Jayne, H. W., Factors Influencing Cerebral Blood Flow and Metabolism, Circulation, 5:225-236, Feb., 1952.

34. Seevers, M. H., Stormont, R. T., Hathaway, H. R., and Waters, R. M., Respiratory Alkalosis During Anesthesia, J.A.M.A., 113:2131-2137, Dec. 9, 1939.

35. Thompson, W. P., The Electrocardiogram in the Hyperventilation Syndrome, Am. Heart J., 25:372-390, March, 1943.

36. Wilson, R. H., Borden, C. W., Ebert, R. V., and Wells, H. S., A Comparison of the Effects of Voluntary Hyperventilation in Normal Persons, Patients with Pulmonary Emphysema, and Patients with Cardiac Disease, J. Lab. & Clin. Med., 36:119-126, July, 1950.

The family physician must remember that the average treatment for a minimal case of tuberculosis requires a period of at least four to eight months—a moderately advanced case from six months to two years, and a far advanced case from one year to several years. With the average cost of sanatorium care at present varying from $8.00 up to $10 a day, one can readily see the local total cost of tuberculosis control. Realizing this, the family physician should advise an x-ray of the chest routinely whenever indicated by an illness, especially any signs of chest illness.—*Edward A. Piszczek, M.D., Illinois Medical Journal, March, 1952.*

Three times as many active cases of tuberculosis per 1,000 examinations are found on hospital admissions as in general community surveys. This is explained on the basis that most of the patients admitted to hospitals are suffering from some source of potential illness.—*Edward A. Piszczek, M.D., The Illinois Med. J., March, 1952.*

Your Laboratories . . .
Our Responsibility



Duncan Laboratories

Established 1921

KANSAS CITY, MO., *909 Argyle Bldg.*

JOPLIN, MO., *230 Frisco Bldg.*

Associated Laboratories

INDEPENDENCE, MO.
Physicians Laboratory
First National Bank Bldg.

LEXINGTON, MO.
Lexington Memorial Hospital

SEDALIA, MO.
Bothwell Memorial Hospital

WARRENSBURG, MO.
Warrensburg Medical Center

Curbstone Consultation

After standard exercise, approximately 10% of patients with angina pectoris and a normal resting electrocardiogram, show evidence of coronary insufficiency; if the amount of exercise be doubled, 33% will show a positive test. In the group with angina and an abnormal resting gram, 50% show changes after exercise, increasing to 66% if the exercise is doubled.

Patients with neurocirculatory asthenia or valvular heart disease frequently show an exercise tracing positive for coronary insufficiency.

Sodeman, Wm. A., Pathologic Physiology: Mechanisms of Disease, W. B. Saunders & Co., 1950, p. 188-189.

Pathologically Speaking

MASTER'S TWO-STEP TEST

WHEN the physician is confronted by the patient in whom precordial pain is a symptom, his ensuing cardiac examination almost always includes an electrocardiogram. Frequently, such a tracing will show no abnormality, despite the fact that the description of the pain, as given by the patient, is typically that of angina of effort or exertion, relieved by rest.

If such be the case, the Master's Two-Step exercise test can be a very helpful diagnostic aid in establishing whether or not coronary insufficiency occurs in the individual when the heart is subjected to extra work demands.

The patient is required to traverse a set of two steps up and two steps down, built specifically at a height of 9 inches each steps. Tables worked out by Masters and his associates are consulted to determine how many times the individual must traverse the steps in a period of one and one-half minutes; this number of trips varies according to the sex, age and weight. One now has a *standard amount of exercise* whereby to judge the working capacity of the heart.

Comparisons are made between the standard three electrocardiographic leads and usually the precordial lead over the apex of the heart, as taken before and then following the measured amount of exercise. The criteria of coronary disease are taken to be:

(1) Significant (0.5 mm. or more) depression of the S-T segment in any lead;

(2) Alteration of a positive T wave to a flat, diphasic or negative T wave in any lead (unless it occurs in standard lead 111 only);

(3) Alteration from a negative to a positive T wave in any lead;

(4) Occurrence of multiple premature beats or any significant arrhythmia;

(5) Prolongation of the P-R interval and/or heart block;

(6) Widening of the QRS complex;

(7) Appearance of deep Q waves.

If any or a combination of these phenomena occurs, an impression of coronary insufficiency is justified, and the patient may be treated accordingly with an eye to the prevention of myocardial infarction.

RALPH EMERSON DUNCAN, M. D.
LORAINE E. SCHULTZ, M. D.
ALBERT E. UPSHER, M. D.

DEATH NOTICES

THADDEUS CAREY KIMBLE, M.D.

Dr. T. C. Kimble, 76, an active member of the Clay County Society who had practiced in Miltonvale for 44 years, died in Topeka, August 28. He received his degree from St. Louis College of Physicians and Surgeons in 1898, and began practice in Illinois. In 1908 he opened his office in Miltonvale. He was active in civic affairs and served one term as a representative in the Kansas legislature.

* * *

HARRY LEWIS STELLE, M.D.

Dr. H. L. Stelle, 80, who had practiced in Pittsburg almost half a century before his retirement early this year, died August 30. He was graduated from Beaumont Hospital Medical College, St. Louis, in 1896, and practiced first in Indian Territory, now Oklahoma. From there he moved to Montana, and in 1905 began practice in Pittsburg, specializing in eye, ear, nose and throat work. He was an active member of the Crawford County Society and of the Kansas City Society of Ophthalmology and Otolaryngology and was a fellow of the American Academy of Ophthalmology and Otolaryngology.

* * *

JOHN B. ANDERSON, M.D.

Dr. John B. Anderson, 75, Valley Falls, died in a Topeka hospital on September 12. He was an active member of the Jefferson County Society. Dr. Anderson was graduated from Eclectic Medical University, Kansas City, in 1914 and practiced in Centralia and Morrill before moving to Valley Falls. He was a veteran of the Spanish-American war and of the Philippine insurrection.

* * *

ETHEL HILL SHARP, M.D.

Dr. Ethel Hill Sharp, 76, a member of the Crawford County Society before her retirement in 1936, died September 24 at the home of a son, Dr. George Sharp, Cincinnati. She was a graduate of the Hering Medical School Homeopathic Institution, Chicago, with the class of 1900. She opened an office in Pittsburg in 1914 and continued to practice there until her retirement.

Completely pure substances are not known to chemistry, but of all common compounds, familiar sugar is the purest, averaging over 99.9 per cent pure sucrose.

COUNTY SOCIETIES

The first fall meeting of the Shawnee County Society was held September 16 at the Hotel Jayhawk, Topeka. The scientific program was presented by Dr. Milton L. Kramer, who spoke on "Newer Therapies in Heart Disease."

* * *

Dr. C. F. Taylor, Norton, was speaker at a meeting of the Butler County Society held in El Dorado, September 8. His subject was "Recent Trends in the Treatment of Tuberculosis."

* * *

A meeting of the Southeast Kansas Medical Society was held September 10 at the Iola Country Club. Dr. Philip W. Morgan, Emporia, was guest speaker. At the business session two Parsons physicians were elected to office, Dr. Mirl C. Ruble as president and Dr. Charles F. Henderson as secretary-treasurer.

* * *

Members of the Reno County Society entertained physicians of nine surrounding counties at a meeting at the Bisonte Hotel, Hutchinson, September 25. Dr. Frederick W. Madison, associate professor of medicine at Marquette University, Milwaukee, spoke on diseases of the blood. Dr. Madison also conducted a clinic at Grace Hospital during the afternoon.

* * *

Four new members were admitted to the Wyandotte County Society at a meeting held at the Kansas City city-county health center, September 16, Dr. Jack R. Cooper, Dr. Carl D. Enna, Dr. William D. Hawley and Dr. Charles A. Hunter, Jr. Dr. Donald L. Rose, head of the department of physical medicine at the University of Kansas Medical Center, spoke on physical medicine. Plans were made for a medical-dental golf tournament, September 25, at Victory Hills Country Club, followed by a dinner at the Terrace Club.

* * *

Members of the Saline County Society were hosts to the Golden Belt Medical Society at a meeting held at the Salina Country Club, October 2. Dr. Charles R. Rombold, Wichita, read a paper, "Intervertebral Disc Syndrome," and Dr. Howard Dunham, Emporia, discussed "Lymphosarcoma." A dinner meeting and business session concluded the day's program.

The 94th annual session of the Kansas Medical Society will be held May 4-7, 1953, in Wichita, Kansas. Make plans now to attend.



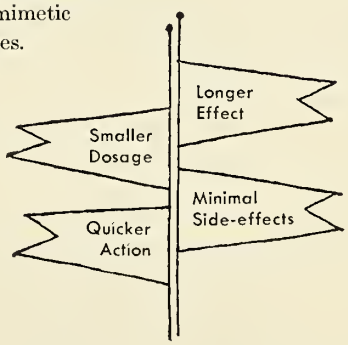
TEMPTATION

HERE'S a tip: DESOXYN Hydrochloride will make the dieting patient a better bet than before by curbing his appetite and elevating his spirits. More potent than other sympathomimetic amines, DESOXYN produces the desired anorexia with smaller doses.

Only one 2.5-mg. or 5-mg. tablet before breakfast and another an hour before lunch are usually sufficient.

In recommended doses, DESOXYN has quicker action, longer effect and a low incidence of side-effects. It is also effective as an adjunct in depressive states accompanying menopause, extended illness and convalescence, and in the treatment of alcoholism and narcolepsy.

Available at all pharmacies in 2.5-mg. and 5-mg. tablets, elixir and 1-cc. ampoules. Abbott



Desoxyn® hydrochloride

(Methamphetamine Hydrochloride, Abbott)

THE KANSAS PRESS LOOKS AT MEDICINE

Editor's Note. In this section the Journal reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

In the Right Direction

According to an American Medical Association report, American hospital service last year reached an all-time high. In 6,637 registered hospitals, 18,237,118 patients were admitted—one every 1.7 seconds.

There was also a marked gain in extending accident and health protection among the people, as measured by the accurate yardstick of premium income. This income for accident and health insurance increased almost 28 per cent over 1950. Blue Cross, Blue Shield and similar plans reported an increase of 14 per cent. Group accident and health insurance jumped nearly 41 per cent.

What is the significance of such facts as these? They show that we are making substantial and steady progress toward solving the financial problems that come with sickness and accidents. And we are doing it voluntarily, as individuals and members of organizations. We aren't doing it because the government tells us we must and taxes us to pay for it—as would be the case under federal compulsory health insurance.

That we still have a long way to go is evident. So is the fact that we are going in the right direction. In those nations, such as England, which have attempted to solve all the problems at one fell swoop by saying, "let the government do it," medical standards have dropped alarmingly and the public health has suffered. In the United States, by contrast, more people have more and better care than in any other major nation. The record speaks for itself.—*El Dorado Times, August 11, 1952.*

* * *

No Need for Socialized Medicine

The death rate in the United States dropped 45 per cent in the past 50 years, according to a survey announced by the Brookings Institute. In this survey it was found that the lowest death rate was in the north central part of the United States, North and South Dakota, Iowa, Nebraska and Kansas.

The death rate in the nation was 17.2 for 1,000 population in 1900 and in 1950 the rate had been reduced to 9.6 per cent. While people are living longer, the big increase was due to health advance among babies under five years.

While this survey is not intended as an argument for or against any medical plan, it does refute the argument of Oscar Ewing, who will be back before the next session of Congress—provided the election goes to suit him—with his efforts to saddle socialized medicine upon the country. He and his misty-eyed propagandists for compulsory health insurance attempt to smear opponents of his scheme by claiming it is being fought by people who have no interest in bettering our general health standards or in improving the quality and scope of medical care. That's quite an indictment, but it simply is not so, and Ewing knows it. Among the many organizations—outside the medical profession—opposing compulsory health insurance are the American Association of Small Business, the American Legion and Auxiliary, AMVETS, the General Federation of Women's clubs, the National Catholic Welfare conference, the National Federation of Press Women, the National Grange, and others. But as might be expected, the labor unions are lining up with the administration—or it might be the other way around.

The remarkable advance in health conditions has been due to the diligent work done by the medical profession, medical colleges, research laboratories and scientists, and it has been done without one cent of federal money and without a horde of bureaucrats and political hangers-on at Washington. There is no denying that there is still room for improvement, but if anyone thinks the cause of healing, in any of its manifestations, would be advanced by socialized medicine or government domination of the nation's medical personnel and facilities, he is blind to the facts. Just because it may be needed in some sections is no reason why socialized medicine should be forced upon everybody in the United States, whether they want it or not, and the medical profession placed in a straight-jacket under the control of some socialistic bureaucrat at Washington. Progress in medicine—as well as all other directions—flourishes best in an air of freedom—not in an atmosphere of red tape, bureaucracy, political mismanagement and government monopoly.—*F.J.C., Kingman Leader-Courier, August 28, 1952.*

Nineteen Egyptian physicians, faculty members of Cairo medical schools, were guests of Eli Lilly and Company in Indianapolis in August. They inspected the Lilly plant and laboratories there, and then went to Rochester to see the Mayo Clinic. The doctors are spending 30 days in the country viewing medical facilities, manufacturing plants and laboratories as a method of exchanging professional ideas.

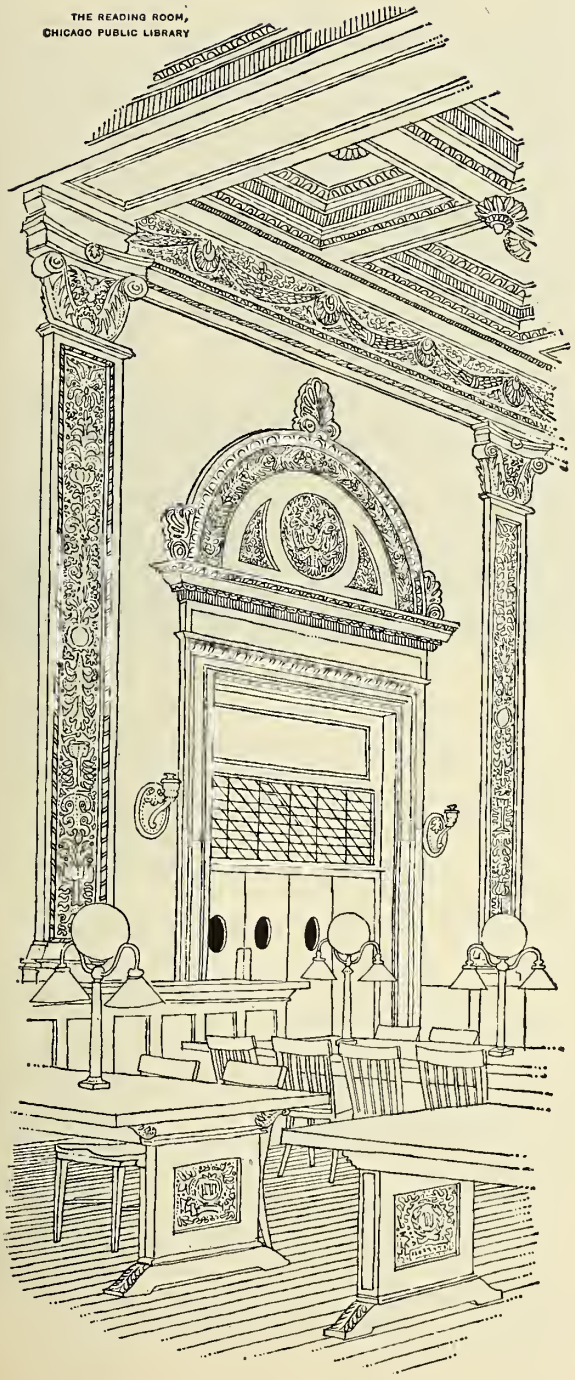
A good citizen votes at every election.

New aureomycin minimal dosage for adults—four 250 mg. capsules daily, with milk.

From among all antibiotics, Ophthalmologists often choose

AUREOMYCIN

Hydrochloride Crystalline



because

Aureomycin penetrates the ocular tissues and fluids, after passing the blood-aqueous barrier.

Aureomycin in 0.5% solution is well tolerated by the conjunctiva.

Aureomycin may be used locally in appropriate solution; or by mouth; or, in emergency, intravenously; or by a combined approach, depending upon the seriousness of the infection.

Aureomycin has proved of value in a number of ocular infections in which other remedies have failed.

Aureomycin has been reported to be effective against susceptible organisms in the following conditions commonly seen by ophthalmologists:

Blepharitis
Conjunctivitis
Dendritic Keratitis
Epidemic Keratoconjunctivitis
Episcleritis
Periorbital Infection
Acute Trachoma
Uveitis

Throughout the world, as in the United States, aureomycin is recognized as a broad-spectrum antibiotic of established effectiveness.

Capsules: 50 mg.—Bottles of 25 and 100.
250 mg.—Bottles of 16 and 100.
Ophthalmic: Vials of 25 mg. with dropper; solution prepared by adding 5 cc. of distilled water.

LEDERLE LABORATORIES DIVISION
AMERICAN Cyanamid COMPANY
30 Rockefeller Plaza, New York 20, New York

ABSTRACTS FROM CURRENT LITERATURE

Endocrine Control of Blood Sugar

The Endocrine Control of Blood Sugar. By C. N. H. Long, Diabetes, 1:3-11 (Jan.-Feb.) 1952.

The author first points out that in the normal individual the blood glocuse level is held within remarkably narrow limits, regardless of the amount of carbohydrate and protein ingested by the individual. He then considers the factors contributing to this stability under various headings:

1. Physiological mechanisms controlling the blood glucose level.

The first such mechanism is the rate of absorption of glucose from the intestinal tract. This rate is higher on a diet rich in carbohydrate, slower on a diet low in carbohydrate. It varies with the metabolic demand of the body; it is slow in hypothyroidism and markedly accelerated in hyperthyroidism.

The liver is important in the physiologic control of blood sugar. This organ forms glycogen from glucose under the influence of insulin, it forms glycogen from the products of protein metabolism under the influence of adrenal cortical hormones, and it breaks glycogen down to glucose under the influence of epinephrine and probably a hyperglycemic factor from the pancreas.

The kidney tubules play an important role in the regulation of blood glucose. All glucose in the plasma is filtered into the glomerular fluid, from which it is normally completely reabsorbed into the circulation by the specific activity of the renal tubules. A high level of glucose in the glomerular fluid prevents complete reabsorption. The absorptive capacity is increased in hyperthyroidism and apparently decreased by certain adrenal steroids. Phloridzin poisoning markedly interferes with tubular reabsorption. The kidney is also capable of forming glucose from carbohydrate sources.

2. Utilization of glucose by the tissues.

Glucose is utilized in the tissues by three pathways of metabolism. The first is by transformation to glycogen either in liver or muscles. The second is by oxidation to carbon dioxide and water. The last pathway, and the least understood, is formation of fatty acids from carbohydrate. These fatty acids may be stored in unlimited amounts in fat depots or may be immediately used for the needs of the organism.

3. The effect of insulin on the utilization of carbohydrate.

Insulin is the only hormone which accelerates the rate of utilization of carbohydrate in the tissues. It apparently affects all three main pathways of carbohydrate utilization.

First, it increases glycogen formation from glucose in both liver and muscles. Secondly, it participates in those processes by which glucose is converted to fatty acids. Thirdly, it has been suggested that insulin participates in the complete oxidation of glucose to carbon dioxide and water.

The author suggests that continued weight gain, with its attendant constant demand for and waste of insulin in the formation of fatty acids, may account for the relationship between obesity and diabetes.

4. The maintenance of blood glucose during fasting.

There are two ways by which this can be accomplished. The first is by formation of glucose from non-carbohydrate precursors. The second is by reducing the utilization of glucose to minimal levels essential for maintenance of the nervous system. Both mechanisms are influenced by the endocrine system.

The anterior lobe of the pituitary appears to be of primary importance in this control. Fasting hypophysectomized rats die within a few hours—the blood glucose continues to fall after the liver is depleted of glycogen. Such fall does not occur in the intact animal. Similarly, muscle glycogen falls rapidly in the fasting hypophysectomized animal and is maintained in the intact animal.

5. The metabolic hormones of the anterior pituitary.

There are at least six hormones secreted by the anterior pituitary. These are the two gonadotropic hormones, thyrotropic hormone, ACTH, the lactogenic hormone, and the growth hormone. The two gonadotropic, thyrotopic, and lactogenic hormones cannot be considered of great importance. ACTH acts through its influence on the adrenal cortex and leads to a consideration of

6. The adrenal cortex and carbohydrate metabolism.

It has been known for a long time that people with Addison's disease and adrenalectomized animals are very susceptible to hypoglycemia, due in part at least to decreased rate of gluconeogenesis from tissue proteins. Injections of adrenal cortical extract or steroids of the cortisone type produce an opposite effect.

However, when hypophysectomized animals are injected with adrenal cortical extract, liver glycogen is increased only moderately and muscle glycogen is not increased. In other words, the defects in fasting metabolism of hypophysectomized animals cannot be completely repaired by adrenal cortical

Schering

CORTOGEN®

ACETATE

for

CORTISONE

therapy

CORTOGEN

The name Schering has come to stand for pioneering research and leadership in steroid hormone chemistry. Now Schering adds this new important product to its steroid line—available in ample amount to meet all your cortisone needs.

Available as 25 mg. tablets, bottles of 30. For complete information write to our Medical Service Department.

Schering CORPORATION · BLOOMFIELD, N. J.

hormones. Crude extracts of the anterior pituitary lobe do restore this metabolism to normal. Therefore, something besides ACTH must be present in pituitary extracts to produce this effect. In other words, there must be a "diabetogenic" factor in the anterior pituitary which exerts its effect independently of the adrenal cortex. This second factor is now believed to be the growth hormone.

7. The effect of the growth hormone on carbohydrate metabolism.

Little is known as yet of the action of the pituitary growth hormone. It has been demonstrated that it is capable of producing permanent diabetes in dogs and cats. Its action is intimately related to one of the least understood metabolic processes, the synthesis of protein.

8. Epinephrine and carbohydrate metabolism.

Epinephrine is rapidly released from the adrenal medulla under a variety of circumstances. It has the property of releasing glycogen from the liver as glucose, and glycogen from the muscles as lactic acid which, on reaching the liver, is converted into glucose. Recently it has been shown that epinephrine also stimulates the anterior pituitary to the release of ACTH, which stimulates the adrenal cortex to a more prolonged but slower effect on carbohydrate metabolism. This mechanism is best demonstrated in hypoglycemia, which stimulates an outflow of epinephrine and thus sets off the chain of events first described for correction of the hypoglycemia.—*E.J.R.*

* * *

Red Cell Mass in Rheumatoid Disease

The Use of Red Cell Mass in Rheumatoid Disease. By Mark W. Garry, Am. J. M. Sc., 223:6, 642-647 (June) 1952.

Anemia, insidious in onset and refractory to iron therapy, has been a fairly consistent associated phenomenon of rheumatoid disease.

Detailed studies of whole blood and plasma volumes in a series of patients with rheumatoid disease demonstrated that the anemia in this instance is due apparently to an increase in plasma volume.

Thirty patients with rheumatoid disease were then given red cell mass transfusions. Each transfusion consisted of one unit of red cell mass (that is, the sedimented cells of one pint of whole blood after the plasma is withdrawn). Six to ten units of red cell mass, in dosage of one unit daily, were given to each patient.

Results were gratifying. Improvement occurred in 24 hours to 9 days in all cases, and was good in 26, fair in four. Five cases have been seen in relapse in the last year.

Within one week after completion of red cell mass transfusions, plasma volume returned to normal.

The author employs the following criteria as indications for red cell mass transfusions:

1. Active rheumatoid disease which does not respond to other usual forms of treatment.

2. Hemoglobin estimations under 11 gms., or hematocrit readings below 40 per cent.—*E.J.R.*

ANNOUNCEMENTS

Dr. I. W. Magill of London, England, will be a guest of the Kansas City Society of Anesthesiology on Monday, October 27. He will present two papers at the University of Kansas Medical Center, one at noon and the second at four o'clock. The Kansas Society of Anesthesiology will sponsor a luncheon for Dr. Magill at 1:30 that day.

* * *

The fifth annual postgraduate course on recent advances in diseases of the chest, sponsored by the Council on Postgraduate Medical Education and the New York State Chapter of the American College of Chest Physicians, will be presented at the Hotel New Yorker, New York City, November 10-14. The course is open to all physicians, but registration will be limited. Application forms may be secured from the Executive Director, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

* * *

The Nebraska State Medical Association announces a series of six regional postgraduate courses sponsored by its Speakers Bureau Committee. The courses are scheduled for the following dates and places: November 17, Lincoln Hotel, Scottsbluff; November 18, Pawnee Hotel, North Platte; November 19, Keystone Hotel, McCook; November 20, Yancey Hotel, Grand Island; November 21, Madison Hotel, Norfolk; November 22, Paddock Hotel, Beatrice. The same course will be presented at each meeting, and the time will be from 1:30 to 9:30 each day. There will be a complimentary social hour and dinner each evening.

The faculty includes Dr. J. M. Baty, Tufts College Medical School, Boston; Dr. Bruce Douglas, Mayo Foundation, Rochester; Dr. Harry F. Southwick, Chicago; Dr. Claude S. Wright, Ohio State University College of Medicine, Columbus. A question and answer period will follow the formal programs. The courses are recognized for credit by the American Academy of General Practice.

Reservations should be sent to the Nebraska State Medical Association, 1315 Sharp Building, Lincoln 8, Nebraska. Kansas physicians are invited to attend.

ANNOUNCING THE TWENTY-SECOND ANNUAL CONFERENCE OF THE OKLAHOMA CITY CLINICAL SOCIETY—October 27, 28, 29, 30, 1952

DISTINGUISHED GUEST LECTURERS

JOHN B. BARTRAM, M.D., *PEDIATRICS,* Associate Professor of Pediatrics, Temple University School of Medicine, Philadelphia, Pennsylvania.

JAMES A. DICKSON, M.D., *ORTHOPAEDICS,* Chief, Department of Orthopaedics, Cleveland Clinic, Cleveland, Ohio.

RUBIN H. FLOCKS, M.D., *UROLOGY,* Professor of Urology, State University of Iowa College of Medicine; Urologist in Chief, University Hospitals, Iowa City, Iowa.

HOWARD K. GRAY, M.D., *SURGERY,* Professor of Surgery, The Mayo Foundation, Graduate School, University of Minnesota School of Medicine, Rochester, Minnesota.

FRANCIS L. LEDERER, M.D., *OTOLARYNGOLOGY,* Professor and Head of the Department of Otolaryngology, University of Illinois College of Medicine, Chicago, Illinois.

CLARENCE S. LIVINGOOD, M.D., *DERMATOLOGY,* Professor and Director of the Department of Dermatology and Syphilology, University of Texas School of Medicine, Galveston, Texas.

ROSCOE L. PULLEN, M.D., *MEDICINE,* Dean and Professor of Medicine, University of Texas Postgraduate School of Medicine, Houston, Texas.

JOHN H. RANDALL, M.D., *OBSTETRICS,* Professor and Head of the Department of Obstetrics and Gynecology, State University of Iowa College of Medicine, Iowa City, Iowa.

WILLIAM L. RIKER, M.D., *SURGERY,* Instructor in Surgery, University of Illinois Medical School, Chicago, Illinois.

EDWIN L. RIPPY, M.D., *MEDICINE,* Associate Professor of Clinical Medicine, Southwestern Medical School of the University of Texas, Dallas, Texas.

LEWIS C. SCHEFFEY, M.D., *GYNECOLOGY,* Professor of Obstetrics and Gynecology, Head of the Department and Director of the Division of Gynecology, Jefferson Medical College and Hospital, Philadelphia, Pennsylvania.

JOHN RUDOLPH SCHENKEN, M.D., *PATHOLOGY,* Professor of Pathology, University of Nebraska School of Medicine, Omaha, Nebraska.

NEWTON D. SMITH, M.D., *PROCTOLOGY,* Associate Professor of Proctology, Mayo Foundation, Graduate School, University of Minnesota School of Medicine, Rochester, Minnesota.

JOSEPH B. VANDER VEER, M.D., *MEDICINE,* Assistant Professor of Cardiology, Graduate School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania.

ROLLAND J. WHITACRE, M.D., *ANESTHESIOLOGY,* Director, Department of Anesthesiology, President, Medical Staff, Huron Road Hospital, Cleveland, Ohio.

HARVEY WHITE, M.D., *RADIOLOGY,* Instructor in Radiology, Northwestern University Medical School, Chicago, Illinois.

GEORGE F. LULL, M.D., Secretary-General Manager, AMERICAN MEDICAL ASSOCIATION, Chicago, Illinois.

CLINICAL PATHOLOGICAL CONFERENCE
GENERAL ASSEMBLIES
ROUND-TABLE LUNCHEONS
SMOKER
POSTGRADUATE COURSES
DINNER MEETINGS
COMMERCIAL EXHIBITS

Registration fee of $20.00 includes all the above features

For further information, address Executive Secretary, 512 Medical Arts Building, Oklahoma City

THE NEUROLOGICAL HOSPITAL

announces the completion of

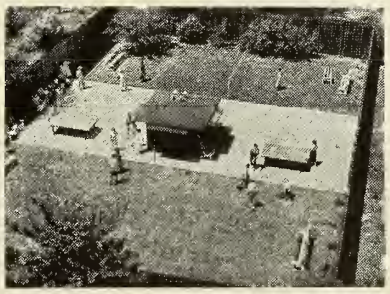
A NEW GERIATRICS UNIT

Fire Proof — Elevator For The Physically Ill — All Hospital Facilities

Choice of Kansas City Psychiatrists — Fully Controlled by the Medical Staff — Lower Rates Than in the Main Hospital

Medical Staff —

Sylvia Allen
Edward E. Baumhardt
Marvin L. Bills
John D. DeMott
Merrill T. Eaton
B. Landis Elliott
Louis H. Forman
Paul Hines
Morton Jacobs



Medical Staff —

Frank J. Koenig
Louise B. Loewy
Albert Preston, Jr.
G. Wilse Robinson
G. Wilse Robinson, Jr.
William F. Roth, Jr.
A. T. Steegmann
E. H. Trowbridge, Jr.
James E. Young

Recreation Area Available to All Hospital Patients

Address All Inquiries to Individual Psychiatrists or to the Neurological Hospital, 2625 West Paseo, Kansas City, Mo.

The Sixth Clinical Session of the American Medical Association will be held at Denver's newly enlarged auditorium, December 2-5.

* * *

The American Urological Association offers its annual award of $1,000 for essays on the result of some clinical or laboratory research in urology. Competition is limited to urologists who have been in such specific practice for not more than five years and to men in training to become urologists. The prize winning essayist will receive $500. A second prize of $300 and a third award of $200 will also be given.

Complete information may be secured from the executive secretary of the association, 1120 North Charles Street, Baltimore, Maryland.

* * *

The International Academy of Proctology announces that an award of $100 will be given the author of the best unpublished contribution on proctology or allied subjects. The competition is open to all physicians, and all entries must be received by April 1, 1953. Additional details of the contest may be obtained from the Academy, 43-55 Kissena Boulevard, Flushing 55, New York.

Appointments at Medical School

Two appointments at the University of Kansas School of Medicine, effective October 1, were announced last month by Chancellor Franklin D. Murphy. Dr. Mahlon H. Delp was named assistant dean of the school and professor of postgraduate medicine, and Dr. E. Grey Dimond was appointed chairman of the department of medicine.

Dr. Delp has been a member of the faculty since 1938 and has been professor of medicine since 1950. The new appointments are in addition to this position, under which he will advise the dean, Dr. W. Clarke Wescoe, on matters concerning medical practice and will direct the university postgraduate courses and circuit courses. Dr. Delp is the first assistant dean for the Kansas City campus of the medical school.

Dr. Dimond has been associate professor of medicine since he joined the faculty in 1950, and has also been director of the cardiovascular laboratory. As chairman of the department of medicine, he will be in charge of curriculum planning for undergraduate teaching in that department.

Kansas Chapter A.C.S. Meets

The Kansas Chapter of the American College of Surgeons held its annual meeting at the Wareham Hotel, Manhattan, September 7. Dr. Murray C. Eddy, Hays, became president, succeeding Dr. J. D. Colt, Jr., Manhattan, and Dr. A. E. Hiebert, Wichita, was elected vice president.

Dr. Colt and Dr. J. G. Hughbanks, Independence, were elected as new councilors. Other council members are Dr. Eddy, Dr. Hiebert, Dr. Orville R. Clark of Topeka, and two governors who represent Kansas in the national organization, Dr. C. C. Nesselrode, Kansas City, and Dr. Thomas Orr, Kansas City.

For the scientific portion of the meeting, papers were presented by Dr. Lloyd Reynolds, Hays; Dr. William L. Valk, Kansas City; Dr. Orr; Dr. Howard E. Snyder, Winfield; Dr. Charles Rombold, Wichita; Dr. John W. Cavanaugh, Topeka, and Dr. C. F. Taylor, Norton.

Hospital Treats 50,000th Casualty

The 8,055th Mobile Army Surgical Hospital, the first of its kind in Korea, treated and evacuated its 50,000th battle casualty in September. The 200-bed hospital, organized two weeks after the outbreak of the Korean war, has been at its present location, just behind the front lines, since last October.

Heliocopters and ambulances bring in wounded troops of all nationalities. Hospital personnel take pride in a patient recovery rate of 99.8 per cent. There are 15 American and Canadian doctors at the hospital, one American dentist, 16 nurses and 181 persons assigned to administrative and technical duties.

It is estimated that Americans spend between 10 and 11 billion dollars annually for health services. One out of three people is totally disabled every year, and for one out of seven that disability endures five weeks or more. In the span of 12 months, one out of 12 is hospitalized for an average stay of 10 days.

Americans lose more than one billion days of work each year on account of sickness. In the course of an average lifetime, an individual will be disabled 17 times.

Only one dwelling in 400 will be damaged by fire. Only one automobile policy in 33 will result in a loss each year, but one disability insurance policyholder in every four will file a claim.—*Best's Insurance News, February, 1952.*

Nations like Sweden and the United States, which have been able to make the relatively small investment involved in a sound public health program, have reaped a rich harvest in life capital as a result. —*WHO Monograph Series, No. 7, 1951.*

Sugar has 1,794 calories a pound, only half as many as a pound of butter.

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE

announces its

Eighth Annual Postgraduate Course in SURGERY

January 19, 20, 21, 22 and 23, 1953

Guest Faculty:

WILLIAM E. ADAMS, M.D., University of Chicago.

FRANK ALBRITTEN, M.D., Jefferson Medical School.

WILLIAM A. ALTMEIER, M.D., Cincinnati General Hospital.

IRVING ARIEL, M.D., Memorial Hospital, New York, N. Y.

ALEXANDER BRUNSCHWIG, M.D., Memorial Hospital, New York, N. Y.

GEORGE CRILE, JR., Cleveland Clinic.

ORMAND S. CULP, M.D., Mayo Clinic.

EVERETT I. EVANS, M.D., Medical College of Virginia, Richmond.

FRANK H. GARDNER, M.D., Peter Bent Brigham Hospital, Boston.

FRANK L. GERBODE, M.D., Stanford University.

PAUL W. GREELEY, M.D., University of Illinois.

C. HOWARD HATCHER, M.D., University of Chicago.

EDGAR A. KAHN, M.D., University of Michigan.

EARLE B. KAY, M.D., Western Reserve University.

ARIEL A. LIEBOW, M.D., Yale University.

ROBERT R. LINTON, M.D., Harvard University.

JOHN B. MCKITTRICK, M.D., New England Deaconess Hospital.

RUSSELL MORGAN, M.D., Johns Hopkins Hospital.

JOHN H. MULHOLLAND, M.D., New York University.

Guest Faculty:

I. S. RAVDIN, M.D., University of Pennsylvania Hospital, Philadelphia.

MARK M. RAVITCH, M.D., Johns Hopkins Hospital.

JONATHAN E. RHODES, M.D., University of Pennsylvania Hospital

FIORINDO A. SIMEONE, M.D., City Hospital, Cleveland.

DANELY P. SLAUGHTER, M.D., University of Illinois.

HENRY SWAN, M.D., University of Colorado.

OWEN H. WANGENSTEEN, M.D., University of Minnesota.

In addition to University of Kansas Faculty

GENERAL SUBJECTS

Monday—SURGERY OF PERIPHERAL VASCULAR DISEASE

Tuesday—NEWER ASPECTS OF BILIARY TRACT DISEASE

Wednesday—CANCER SURGERY

Thursday—RECENT ADVANCES IN SURGERY

Friday—SYSTEMIC EFFECTS OF SURGICAL DISEASES AND THEIR TREATMENT

In addition each day's program includes: Operative Clinics with Color Television, Ward Walks and Grand Rounds, Case Conference and Panel Discussion in addition to seven Lectures or Demonstrations.

Complimentary Buffet Dinner, Wednesday Evening.

For copy of program announcement, address:

Extension Program in Medicine
University of Kansas Medical Center
Kansas City 12, Kansas



State Hospital Fund Referred to Voters

Kansans will have an opportunity to vote funds for the state hospital system when they go to the polls on November 4. A constitutional amendment for the establishment of a building fund for state charitable institutions will be on the ballot. If it passes, this amendment will permit the legislature to levy a small ad valorem tax solely for a state hospital building fund.

The 1949 and 1951 legislatures radically reorganized the state hospital system in Kansas. Emphasis was placed on hiring and training professional personnel, and the staffs of all of the institutions have been improved considerably as a result.

The biggest problem facing the hospitals now is that of buildings, as most of those now in use are antiquated and out-moded, some even firetraps. Little building was done during the depression, construction was hampered during the war years, and appropriations since that time have gone for staffs.

A statement on the need for passage of the amendment was made recently by Mr. W. D. Weigand, president of the Kansas Association for Mental Health, who said, "This pay-as-you-go proposal for the systematic development of our hospital facilities has the support of both political parties and the endorsement of many Kansas civic groups. Without such a fund the state hospitals will be at the mercy of whatever pressures develop from year to year, and the buildings will continue to deteriorate."

All products mentioned by advertisers in the Journal are approved by the various councils of the A.M.A.

The 94th annual session of the Kansas Medical Society will be held May 4-7, 1953, at Wichita. Make plans now to attend.

CLASSIFIED ADVERTISEMENTS

FOR SALE—Library of medical books, white ename. folding table (examining), medical instruments. Will sel reasonably. Write the Journal 9-52.

FOR SALE—Trial case, refraction cabinet, ultra violet and other lamps, compressor and suction apparatus, specialist cabinet, stools, chairs, tables and other items, fountain cuspidor, large selection of EENT instruments. Retiring. Write the Journal 10-52.

FOR SALE—16-inch Castle electric sterilizer. Like new Write the Journal 12-52.

FOR SALE—Old gas sterilizer, 3 sections, gauze, instrument and water heater, serviceable condition, $35; Sorensen suction pressure outfit, $40. Write the Journal 14-52.

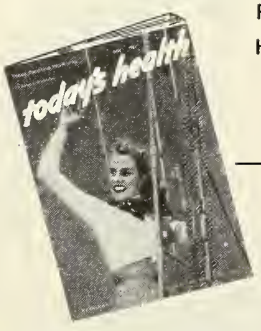
PHYSICIAN WANTED—Excellent opportunity available for draft exempt physician in modern western Kansas county seat town of approximately 2,000. Only young physician on temporary deferment until replacement can be found. Only two other elderly physicians in entire county of over 9,000 population, only one of these located in this city. Write the Journal 15-52.

OFFICE AND EQUIPMENT AVAILABLE in Hutchinson. Deceased physician had fine practice. Write the Journal 16-52.

FOR SALE—Optical equipment, excellent condition, surgical instruments and office furniture. Write the Journal 17-52.

today's health a must!

for your reception room



Physicians' Half-Price Rates

4 years	$4.00
3 years	3.25
1 year	1.50

AMERICAN MEDICAL ASSOCIATION
535 North Dearborn · Chicago 10, Illinois

Deformity Appliances of Quality

Orthopedic and Surgical Appliances
Artificial Limbs

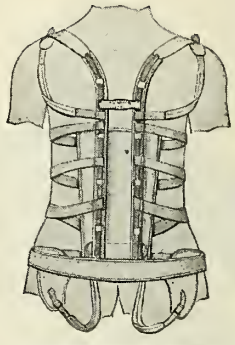
Trusses

Abdominal Supports

Elastic Hosiery

Foot Supports

Surgical Corsets



Taylor Back Brace

Made to Order In Our Own Factory

P. W. HANICKE MFG. CO.
1009 McGee St. Victor 4750
KANSAS CITY, MO.

Nationally advertised Surgical Supplies and Equipment have been placed at Topeka, Joplin, Kansas City and St. Joseph for your convenience by —

GOETZE NIEMER CO.

Management by Dr. W. F. Goetze, a member of the American Medical Association, assures intelligent servicing of your orders.



***New 2-Way Aid in* ACNE**

Now hide and treat acne blemishes simultaneously with new AR-EX R.M.S. Lotion. Complexion tinted. Contains resorcinol monoacetate and sulphur in gentle AR-EX Foundation Lotion. Non-astringent.

AR-EX COSMETICS, INC., 1036 W. Van Buren St., Chicago 7, Ill.

Send for Free Sample.



AR-EX R.M.S. *Lotion*

For children from five to twelve, of average or superior intelligence, with emotional and behavior problems:

THE SOUTHARD SCHOOL
of
The Menninger Foundation

Intensive individual psychotherapy in a residential school

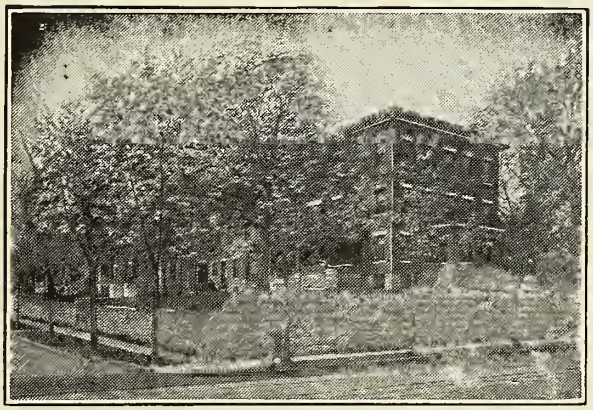
Outpatient psychiatric and neurologic evaluation and treatment for children up to 18 years of age is also available.

J. Cotter Hirschberg, M.D., *Director* Topeka, Kansas, Telephone 3-6494

THE MAJOR CLINIC ASSOCIATION

3100 EUCLID AVENUE KANSAS CITY, MISSOURI

A Well Equipped Institution for the Nervous and Mental Diseases and Alcohol Drug and Tobacco Addictions



Beautiful Location Large, Well Shaded Grounds Spacious Porches, All Modern Methods for Restoring Patients to a Normal Condition

Elderly People Accepted — Special Rates

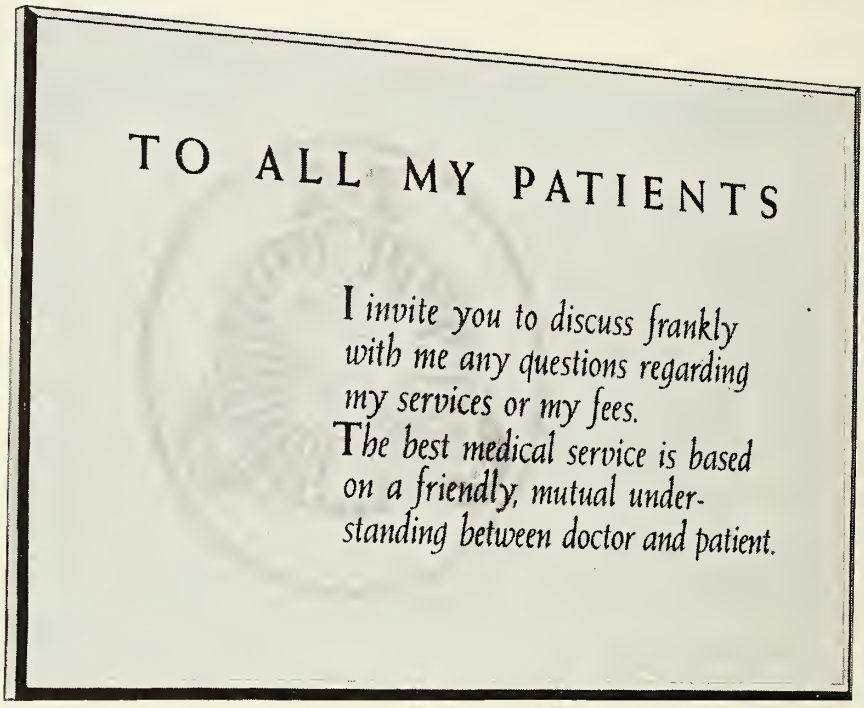
HERMON S. MAJOR, M.D.
Medical Director

HERMON S. MAJOR. JR.
Business Manager

announcing

A NEW PUBLIC RELATIONS AID

. . . to boost your PR rating



NEW OFFICE PLAQUE

- ✓ **dark brown lettering on buff**
- ✓ **harmonizes with any office decor**
- ✓ **measures 11½ by 7¾ inches**
- ✓ **for desk or wall**
- ✓ **laminated plastic finish**

As you know, a physician's best public relations is carried on right in his own office. Here the physician gets acquainted with his patients gives them a chance to talk over problems . . . builds a feeling of mutual understanding between patient and doctor.

Your American Medical Association has designed an attractive new office plaque to be displayed prominently on an office desk or wall. This is a graphic invitation to patients to talk over professional services and fees. Patients like to ask questions, but often are hesitant to do so. This plaque will open the door to better relations with your patients. Order one today.

PRICE
$1
POSTPAID

Order Department
AMERICAN MEDICAL ASSOCIATION
535 North Dearborn Street
Chicago 10, Illinois

THE LATTIMORE-FINK LABORATORIES

Topeka El Dorado
Kansas

J. L. Lattimore, A.B., M.D., Pathologist
A. A. Fink, A.B., M.D., Pathologist
H. C. Ebendorf, M.T. Serologist
A. C. Keith, B.S., Chemist
L. W. Hull, A.B., Bacteriologist
Walter Norris, A.B., Chemist

Anatomical and Clinical Pathology

Containers Furnished Upon Request

Over 37 Years . . .
Builders and Fitters of Artificial Limbs and Orthopaedic Appliances

Isle Built Appliances restore the highest possible degree of efficiency to patients who have suffered amputation or other physical impairment.
Your instructions followed implicitly.
Qualified, courteous personnel.

ENTIRE SECOND FLOOR PHONE VICTOR 2350

THE W. E. ISLE COMPANY
1121 GRAND AVE. KANSAS CITY, MO.

Everything for the Laboratory

Southwest Scientific Corporation

LABORATORY SUPPLIES AND EQUIPMENT

122 South St. Francis Street

Phone 2-0582 Wichita, Kansas

Cook County Graduate School of Medicine

ANNOUNCES CONTINUOUS COURSES

SURGERY—Intensive Course in Surgical Technic, Two Weeks, starting October 6, October 20, and November 3.
Surgical Technic, Surgical Anatomy and Clinical Surgery, Four Weeks, starting October 20.
Surgical Anatomy and Clinical Surgery, Two Weeks, starting November 3.
Surgery of Colon and Rectum, One Week, starting October 20, November 17.
Gallbladder Surgery, Ten Hours, starting October 20.
Bronchoscopy, One Week, by appointment.
General Surgery, One Week, starting October 6.
General Surgery, Two Weeks, starting October 6.
Breast and Thyroid Surgery, One Week, starting October 6.
Esophageal Surgery, One Week, starting October 13.
Thoracic Surgery, One Week, starting October 20.
Fractures and Traumatic Surgery, Two Weeks, starting October 6.

GYNECOLOGY—Intensive Course, Two Weeks, starting October 20.
Vaginal Approach to Pelvic Surgery, One Week, starting November 3.

OBSTETRICS—Intensive Course, Two Weeks, starting September 29, November 3.

MEDICINE—Intensive General Course, Two Weeks, starting October 13.
Gastroenterology, Two Weeks, starting October 27.
Gastroscopy and Gastroenterology, Two Weeks, starting November 3.

CYSTOSCOPY—Ten-Day Practical Course starting every two weeks.

DERMATOLOGY—Intensive Course, Two Weeks, starting October 13.

TEACHING FACULTY—ATTENDING STAFF OF COOK COUNTY HOSPITAL
Address: Registrar, 707 So. Wood St., Chicago 12, Ill.



THE BROWN SCHOOL

Four distinct units. Tiny Tots through the Teens. Ranch for older boys. Special attention given to educational and emotional difficulties. Speech, Music, Arts and Crafts. A staff of 12 teachers. Full time Psychologist. Under the daily supervision of a Certified Psychiatrist. Registered Nurses. Private swimming pool, fireproof building. View book. Approved by State Division of Special Education.

BERT P. BROWN, DIRECTOR
PAUL L. WHITE, M.D., F.A.P.A.,
MEDICAL DIRECTOR
P. O. Box 4008, Austin, Texas

Medical and Surgical Supplies for Doctors of Medicine and Hospitals.

Munns Medical Supply Co.
512 Kansas Ave.
Topeka, Kansas

THE MEDICAL PROTECTIVE COMPANY
FORT WAYNE, INDIANA

PROFESSIONAL PROTECTION EXCLUSIVELY SINCE 1899

specialized service assures "*know-how*"

TOPEKA Office:
J. E. McCurdy, Rep.,
1035 Randolph Avenue,
Telephone 2-3027

Index to Advertisers

Abbott Laboratories 495
Ames Company, Inc. XII
Ar-Ex Cosmetics, Inc. 505
Ayerst, McKenna and Harrison, Ltd..... VI
Brown School 507
Coca-Cola Company 503
Cook County Graduate School of Medicine..... 507
Duncan Laboratories 493
Fairmount Hospital 508
General Electric Company, X-ray Department.. XIV
Goetze Niemer Company 505
Hanicke, P. W., Manufacturing Company..... 504
Isle, W. E., Company..... 507
Kansas Oxygen, Inc. Inside back cover
Lattimore-Fink Laboratories 507
Lederle Laboratories, Inc. 497
Lilly, Eli, and Company Facing XVIII
Major Clinic 505
Mead Johnson and Company Back cover
Medical Protective Company 508
Menninger Foundation 505
Merck and Company, Inc. XV
Munns Medical Supply Company, Inc..... 508
Neurological Hospital Association 501
Oklahoma City Clinical Society 501
Parke, Davis and Company.Inside front cover and III
Pfizer, Charles, and Company, Inc.....IX, X and XI
Physicians Casualty Association XVIII
Producers Creamery Company XVI
Ralph Sanitarium XIII
Sandoz Pharmaceuticals, Inc. XVI
Schering Corporation V and 499
Searle, G. D., and Company..... 487
Southwest Scientific Corporation 507
Squibb, E. R., and Sons 489
University of Kansas Medical Center..... 503
Upjohn Company 491
Wander Company XVII
Washington National Insurance Company Inside back cover
Winthrop-Stearns, Inc. VII
Woodcroft Hospital XVIII
Wyeth, Inc. VIII

SECLUSION MATERNITY



Fairmount HOSPITAL
FOR UNMARRIED GIRLS
Est. 1909

Private sanitarium with certified abstetrician in charge. All adaptians arranged thraugh juvenile caurt. Early entrance advised.

Rates reasanable. In certain cases wark given ta reduce expenses.

Write for Information
MRS. EVA THOMSON
4911 East 27th St.
Kansas City, Ma.

THE JOURNAL
of the
KANSAS MEDICAL SOCIETY
Owned and Published by The Kansas Medical Society

Volume LIII NOVEMBER, 1952 Number 11

Giant Intracanalicular Fibro-Adenoma

John G. Shellito, M.D., and Wayne C. Bartlett, M.D.*
Wichita, Kansas

Chelius[1] first described a breast tumor, which he called a cystic hydatid. Johannes Müller[5] in 1838 described the tumor in more detail under the name of cystosarcoma phylloides. Since that time many different names have been used to designate the tumor called giant intracanalicular fibromyxoma by Lee and Pack[4] in October, 1931. Lee and Pack[4] collected 105 cases and added four of their own. In 1941, Owens and Adams[6] reviewed the literature and added a case of their own. The total number of reported cases then reached 122. Reed and Hiebert[7] reported a case of bilateral giant fibro-adenomata associated with pregnancy, in 1942. In December of 1950, Horton and Baker[3] added one other case to the literature. This brought the total reported cases to 127.

Giant fibro-adenoma of the breast still remains a rare lesion. In the gross this lesion is often confused with a far advanced cancer.

Pathology

According to Lee and Pack,[4] these giant lesions arise from a pre-existing small fibro-adenoma. The average age for most women with this lesion is in the forties.

The breast is usually found to be enlarged by a nodular, encapsulated tumor mass, which does not involve the nipple or the axillary nodes. Some areas of the tumor mass are usually found to be cystic.

Histologically myxomatous degeneration is often seen. In the benign types the main element is fibrous and no mitoses are in evidence. The ducts and the glands appear tortuous and bizarre.

The malignant lesions show areas which are obviously benign, intermingled with those showing malignant change. There is increased cellularity, loss of fibrous tissue preponderance, and evidence of mitotic figures (Figure 1). In 1943, Cooper and Ackerman[2] adequately reported a malignant sarcomatous change in a giant intracanalicular fibro-adenoma.

Case Report

Mrs. R. G., a 45-year-old white female, presented herself at the Wichita Clinic complaining of a breast lesion. In 1938, three years following the birth of a baby, which she nursed, she noted a tumor in the left breast. This tumor was biopsied elsewhere and reported as benign. The lesion remained the same size until June of 1951, when a sudden increase in growth was noted. Associated with the

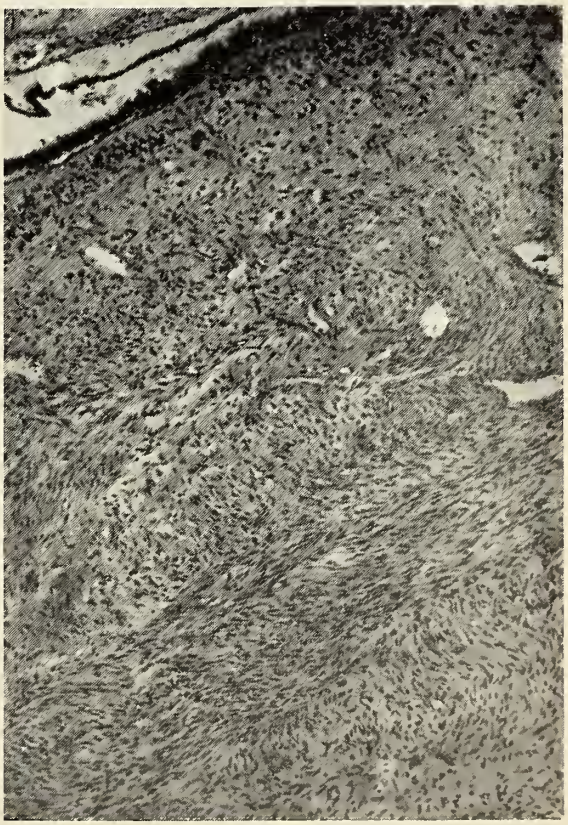


Figure 1. Increased cellularity.

*Both authors on the staff of the Wichita Clinic.

increase in size, there was a rather profuse bloody discharge from the nipple. The skin over the lesion became taut and the breast as a whole felt much harder than before. There was no appreciable weight loss.

A large hard tumor which occupied at least two-thirds of the breast area was found on physical examination. Pressure upon the lesion itself would produce a bloody discharge from the nipple.

A simple left mastectomy was done on December 5, 1951. Frozen section was reported as malignant in some areas of the tumor. The simple mastectomy was then immediately followed by a radical operation. Further examinations of fixed sections later revealed sarcomatous change in a grossly benign giant follicular intracanalicular fibro-adenoma. The patient made an uneventful recovery and at the present time is living and well.

Discussion

This tumor is, in general, considered a benign lesion. Because of the cellularity, some pathologists tend to list many of these tumors as sarcomas. The medical and surgical literature is much confused with a variety of names. Of the entire list, giant intracanalicular fibro-adenoma and cystosarcoma phylloides seem to have stood the test of time.

The majority of these lesions have been reported prior to the advent of frozen section diagnosis, and before the dictum of breast biopsy became established. With modern methods of treatment this lesion should gradually become extinct.

These lesions are noted for their large size. Their relative benignity is exemplified by the lack of involvement of axillary nodes. These tumors are usually well encapsulated in the gross and are movable upon examination. Previous discussions in the literature have mentioned a sudden increase in growth engrafted upon what was a small intraductal fibro-adenoma. It is thought that the hormones associated with pregnancy have a definite relationship to this growth stimulus.

Under the microscope, distorted cystic spaces between polypoid growths are seen. If increased cellularity and mitotic figures are evident, the lesion must be considered malignant (Figure 2). The differentiation between pseudo-sarcoma and true malignancy is often a difficult one.

In spite of the widespread opinion that these tumors are in the main benign, a careful search by the pathologist will often reveal true areas of malignancy.

Conclusion

1. The historical aspects of giant follicular intraductal fibro-adenoma are reviewed.

2. Attention is called to the confused nomenclature in the literature.

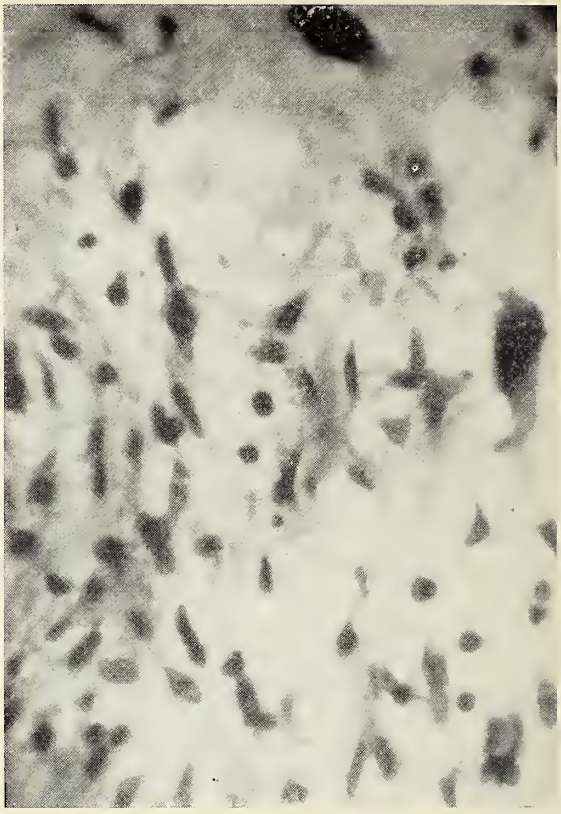


Figure 2. Mitotic figures and loss of fibrous tissue stoma preponderance.

3. The physical aspects of the lesion are discussed.

(a) Sudden increase in size of the previously noted small lesion.

(b) Encapsulation of the tumor in the gross, and the usual absence of axillary nodes.

(c) Association of pregnancy and the hormonal stimulus to growth, as mentioned in the literature.

4. These tumors must not all be considered benign lesions. A true malignant change is occasionally encountered.

5. The pathological differentiation between a benign lesion and a malignant lesion is often difficult.

Bibliography

1 Chelius, M. J.: Telangiektasie, Heidlb, Klin. Ann. 4:499-517, 1828.

2. Cooper, W. G., and Ackerman, L. V.: Cystosarcomatoid Phylloides, SG and O, 77:3, 279-283, September, 1943.

3. Horton, C. E., and Baker, J. M.: Cystosarcomatoid Phylloides, Amer. J. Surgery, 80:7, pp. 896-898, December, 1950.

4. Lee, B. J., and Pack, G. T.: Giant Intracanalicular Fibro-adenomyxoma of the breast, Amer. J. Cancer, 15:4, 2583-2609, October, 1931.

5. Müller, J.: Ueber den feinern Bau und die Formen der krankhaften Geschwülste, Berlin, G. Reimer, 1838. Arch. f. Anat. Physiol. u. Wissensch Med. 1936, Vol. 3.

6. Owens, F. M., and Adams, W. E.: Giant Intracanalicular Fibro-adenoma of the Breast, Arch. Surg. 43:588-598, October, 1941.

7. Reed, H. L., and Hiebert, A. E.: Bilateral Giant Fibro-Adenoma Simulating Malignancy in Pregnancy, Jour. Kansas Med. Soc., Vol. 43:7, pp. 284-286, July, 1942.

The Role of Allergy in Infectious Diarrhea of Infancy*

Frederic Speer, M.D.
Kansas City, Kansas

No disease of infancy has given way more steadily before advances in sanitation and food handling than "summer complaint." In spite of this, infectious diarrhea remains a serious threat to infants, even to those in the best environments. That this is so is largely because of the mystery and confusion that surround the problem of etiology.

Anyone who investigates the subject will agree that "the literature on diarrheal diseases has become notable for the variability in findings and conclusions."[4] The rarity of positive stool cultures has led to the general assumption that viruses are a leading cause; their role in some outbreaks has been demonstrated.[3] Two things suggest that the viruses of respiratory disease may be common offenders: (a) the common presence of a "cold" or red throat, and (b) the seasonal incidence. In Kansas City, Kansas, a three-year study of admissions to three private hospitals shows that the highest peaks occurred in winter. Like upper respiratory disease, infectious diarrhea can occur at any time, but it is apparent that as a disease severe enough to require hospitalization, at least, it is tending to become a winter problem (Figure 1).

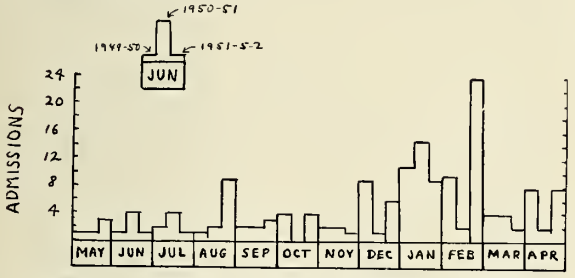


Figure 1. Admissions for infectious diarrhea in infants below two years, Bethany, Providence, and St. Margaret's Hospitals, Kansas City, Kansas, from May 1, 1949, to May 1, 1952.

It will be assumed as a working hypothesis that present-day infectious diarrhea of infancy is largely caused by these mysterious agents of respiratory disease and that the bowel is ordinarily not susceptible to them. The purpose of this communication is to suggest that loss of this natural resistance is commonly due to food allergy and to propose that the allergic factor be evaluated in infectious diarrhea of young children.

Allergy and Infection

That allergy increases susceptibility to infection is axiomatic. In the respiratory tract, for example, frequency or chronicity of infection turns the physician's suspicions to allergy. A similar susceptibility prevails in atopic eczema, where the skin is likely to be invaded by organisms to which in health it would be quite resistant. There is good precedent, then, for proposing allergy as a predisposing factor in infectious diarrhea.

It is not within the scope of this paper to discuss allergic diarrhea. Diarrhea due directly and solely to food allergy almost always begins in early infancy when the baby first encounters the offending food. Although usually mild, these cases may occasionally be severe; a case of this type was discussed recently by Darrow.[2] *Two cases of allergic diarrhea were hospitalized during this outbreak, but are not included in this paper.*

Clinical Material

This is a report based on experiences during an epidemic of the first four months of 1952. Nineteen infants with fever, diarrhea, and (usually) vomiting were hospitalized from the writer's office. All were free of allergic manifestations at time of onset. There is nothing remarkable in the course; they were admitted early and recovered with orthodox treatment. Two factors only, the feeding history and the family history, will be elaborated on.

Feeding History. Gastrointestinal allergy in infants usually manifests itself in the form of abdominal pain (colic), vomiting or diarrhea.[5] Of the 19 cases presented, 14 had had one or more of these in a marked degree. In each case, controlling food intolerance had involved specific food avoidance, cow's milk being by far the worst offender. The five who had no such history are interesting. One was highly susceptible to colds and developed asthma shortly after the diarrhea episode; this was traced to milk. Two others were breast fed, one for nine months, the other for 12. Another had a severe congenital heart lesion, probably an interauricular septal defect, and had had congenital hypertrophic pyloric stenosis relieved by pyloromyotomy. The fifth was a normal bottle baby, the only normal bottle baby of the 19.

Family History. In the immediate families of the parents there was a high incidence of two conditions commonly associated with food allergy: asthma and migraine. In one infant (R.S.) there

*From the pediatric services of Bethany, Providence, and St. Margaret's Hospitals, Kansas City, Kansas.

TABLE I

Summary of 19 cases of infectious diarrhea of infancy

	Sex	*Age (mon)*	*Family History*	*Feeding History*
1. M.F.	M	7	Migraine	Colic
2. R.S.	M	10	Migraine, asthma	Colic
3. R.B.	F	16	Migraine, asthma	Colic
4. L.M.	F	20	Migraine, asthma	Colic
5. R.E.	F	14	Migraine	Colic
6. R.C.	M	11	Migraine	Colic, diarrhea
7. F.S.	M	10	Asthma, hay fever	Colic, diarrhea
8. S.M.	M	8	Migraine	Colic, diarrhea
9. D.B.	F	9	Migraine	Colic, diarrhea
10. T.C.	M	11	Hay fever	Colic, diarrhea
11. K.M.	F	7	Migraine, hay fever	Diarrhea, vomiting
12. M.Z.	M	15	Asthma	Diarrhea, vomiting
13. D.V.	M	12	Asthma, hay fever	Vomiting (formula) Neg. on breast
14. L.F.	F	10	Hay fever	Vomiting
15. E.A.	M	15	Migraine	Neg.
16. M.D	F	15	Migraine	Neg.
17. A.M.	F	22	Asthma	Neg. (asthma)
18. J.B.	M	8	Neg.	Neg. (cong. heart)
19. J.H.	M	23	Neg.	Neg.

was a history of sibling death from diarrhea. This is a family with widespread allergy. An almost identical history was obtained in a case seen in 1951.

Feeding and family histories are summarized in Table I.

Implications

Prevention. If the concept developed here is valid, the physician may well be less in a hurry to return "feeding problems" to a general diet. Table I shows that incidence in this outbreak was low before the ninth month. The role of maternal antibodies is apparently as important here as in many other childhood diseases. It would certainly seem impractical to keep all children with bad feeding histories on a restricted diet well into the second year. Probably the best answer is to advise minimal amounts (16 ounces in the case of milk, for example) with complete avoidance with the onset of upper respiratory infection.

Treatment. Whatever the merits of early versus delayed oral feeding,[1] or whatever the physician's feeling about feeding problems as allergies, it seems wise to protect the sick bowel from foods which it did not tolerate in health. It is the work of a moment to get a newborn history of colic, vomiting, or diarrhea. It is a history hardly to be forgotten by the parents.

These cases were started on carbonated beverages and tea with sucrose as soon as vomiting stopped. Gelatine was begun a few hours later. In the absence of a contraindicating history, oatmeal and rice cereals were begun within 12 or 18 hours. Milk was regarded with utmost suspicion. In more severe cases or in those with especially bad milk histories —the two practically coincided—milk was withheld until well after the child returned home. Mullsoy and Nutramigen were found excellent milk substitutes.

Summary

Feeding histories and family histories were reviewed in 19 cases of infectious diarrhea of infancy occurring during a severe four-month outbreak. In 14 of these there was a strong feeding history of intolerance to cow's milk or other specific foods as manifested in colic, diarrhea, or vomiting. In 17 there was a family history of asthma, migraine, or hay fever.

These findings are presented as evidence that allergy to foods is a significant predisposing factor in the etiology of infectious diarrhea of infancy.

Bibliography

1. Chung, A. W., and Viscarova, B.: Effect of early oral feeding versus early oral starvation on course of infectious diarrhea. J. Pediat. 33::14, 1948.

2. Darrow, D. C.: Therapeutic measures promoting recovery from physiological disturbances of infectious diarrhea, Pediatrics, 9:519, 1952.

3. Dodd, Katherine, in Advances in Pediatrics, New York, Interscience Publishers, Inc., 1947, vol. II, p. 298.

4. Hardy, A. V., and Watt, J., in McQuarrie, I: Brenneman's Practice of Pediatrics, Hagerstown, Md., W. F. Prior Co., 1948, vol. II, ch. 5, p. 1.

5. McGee, W. A., in Ratner, B: Allergy in Relation to Pediatrics, Saint Paul and Minneapolis, Minn., Bruce Publishing Co., 1951, p. 131.

Treatment of Hypertension

Arnold V. Arms, M.D.*
Kansas City, Missouri

The problem of hypertension and its management is as old as the history of medicine itself. Even before the blood pressure of man had been measured, the large, heavy heart of the hypertensive person had already been observed and described. Early in the 19th century, Richard Bright, without the benefit of studies on the arterial pressure, concluded that there was a direct relationship between renal disease and these large, heavy hearts. He did recognize the probable existence of increased resistance to the flow of blood through the peripheral blood vessels and even concluded that renal disease was responsible for some chemical in the blood which produced cardiac hypertrophy. However, he felt that the mechanism involved a direct effect on the cardiac muscle. Even today our speculations on the precise mechanism of the relationship between hypertension, vascular disease, and renal vascular disease have not advanced remarkably beyond the conclusions of Richard Bright.

The vascular crisis of hypertension is a medical emergency. It is a syndrome consisting of a group of alarming and potentially lethal symptoms that occurs not uncommonly in patients with any of the various types of hypertension, regardless of their etiology. These symptoms are due to an increase in blood pressure, usually sudden, to levels substantially higher than those ordinarily present. The prodromata are likely to include mental confusion, headache, twitching and particularly left ventricular heart failure. As the pressure rises further, the condition may produce coma, convulsions, transient hemiplegia and other cerebral symptoms, as well as acute congestive failure—or the symptoms of a pre-existing failure may become decidedly more pronounced.

In the past the usual therapeutic procedures that have been employed for the attempted treatment of the vascular crisis of hypertension have been remarkably ineffective. With recent advances in the standardization and purification of Veratrum, there has been hope that it might prove useful in this condition. Such, indeed, has proved to be the case.

Historically, Veratrum, or hellebore, seems first to have appeared in medicine during the time of Hippocrates as the "universal emetic." This was the European or white helebore *(veratrum album)* which is virtually identical in its actions and composition with the American or green hellebore *(Veratrum viride)*.[1] The earliest use of *Veratrum viride* in America is said to have been in connection with the selection of Indian chiefs—"that individual whose stomach was least susceptible to its deleterious effects was regarded as the strongest of the party, and entitled to command the rest."[2] In 1870, Wood concluded that the alkaloids of Veratrum viride act as a "direct arterial sedative to man;"[3] yet it was generally believed until 1946 that the reduction in blood pressure following administration of Veratrum viride was the result of a toxic depression of the myocardium. In that year Krayer and Acheson[4] described a significant reduction in arterial pressure produced by Veratrum doses that were below the toxic level; this fall in blood pressure was associated with peripheral vasodilation rather than with depression in cardiac output.

Early in the study of Veratrum in the treatment of hypertensive crises we employed a tablet which contained biologically standardized whole powdered Veratrum viride, designated as Vertavis.* When oral medication could not be satisfactorily administered, we employed an aqueous solution of the alkaloids of Veratrum, designated as Veratrone.* More recently, two highly purified fractions or extracts of Veratrum viride have been made available and have been employed for both oral and parenteral administration. These are designated as Veriloid* and Anatensol.* The action of these two agents given intravenously is essentially the same.

They are best given by slow infusion at a constant rate; and, with these drugs a striking hypotensive effect usually appears within 8 to 15 minutes—commonly but not invariably associated with bradycardia. Then the infusion is interrupted or retarded, so that the hypotension may be maintained or allowed to moderate.

The dose of these drugs must be calculated on the weight of the patient. An average dose of Veriloid is from 0.75 to 1.0 micrograms and Anatensol from 0.02 to 0.08 micrograms per kilogram per minute. In cases of acute emergency when the effects are desired as quickly as possible and when the patient is unable to retain medication orally, the parenteral method is preferred.

Our own experience has been confined to the use

*Associate in Medicine, University of Kansas Medical Center.

*The following trade-marks designate products used in this study: Vertavis (Irwin, Neisler and Company, Decatur, Illinois). Veratrone (Parke, Davis and Company, Detroit, Michigan). Veriloid (Riker Laboratories, Inc., Los Angeles, California). Anatensol (E. R. Squibb and Sons, New York, New York). Dramamine (G. D. Searle and Company, Chicago, Illinois). Banthine (G. D. Searle and Company, Chicago, Illinois). Nitranitol P.V. (William S. Merrell Company, Cincinnati, Ohio).

of Veratrone given subcutaneously in doses from 5 to 15 minims. Our procedure is to record the blood pressure and pulse at about 15 to 30 minute intervals. If there has been no lowering of blood pressure or pulse in one hour, the medication is repeated at the same or increased doses until the Veratrum viride reaction occurs. By this, we mean a hypotensive response in which the blood pressure will fall precipitously from previous high levels down to 100 to 120 mm. of mercury systolic and 40 to 60 diastolic—or even lower figures. The pulse slows down to a rate of 40 to 60 per minute. The patient salivates excessively, complains of burning of the throat or epigastrium, and often has nausea and vomiting. The electrocardiogram shows only a sinus bradycardia.

The hypotensive action and symtomatic improvement in such cases may be very striking indeed. The blood pressure as a rule remains at subnormal to normal levels from 4 to 12 hours and then gradually rises toward the previous level, but seldom attains the previous heights.

In order to maintain more nearly normal blood pressure level, one must either interrupt or retard the infusion or repeat the injections at 4 to 12 hour intervals according to the repeated determination of the blood pressure. Our practice has been to check the blood pressure every two to three hours. When the systolic pressure reaches the level of 170 or above, diastolic 110 or above, we give a hypodermic injection of Veratrone again, using either the same dosage or a smaller dosage, depending on the effectiveness of the medication. By this means one can effect a marked improvement in the general condition of the patient and control the acute crisis.

Oral medication is likewise effective when tolerated. The dose cannot be gauged as accurately as it is by the intravenous or parenteral route, and usually there is a greater tendency for vomiting. However, in at least 50 per cent of cases, it is possible to achieve a significant lowering of arterial pressure without any untoward symptoms. Our procedure is usually to give two tablets of Vertavis every hour; and, usually after three or four doses, the same dramatic Veratrum viride reaction as is obtained parenterally will result. The oral medication usually takes two and a half to three hours before it is effective. The physiologic response that occurs is just as positive as that seen by the hypodermic route and avoids the trauma of the needle. Oral medication is practical and effective both during the crisis and afterwards to prevent sudden rises in blood pressure.

The effects of this therapy are striking, as would be expected from the degree of depressor response. The cerebral symptoms disappear often within an hour. Left ventricular failure is frequently overcome within a few hours without administration of digitalis, as is manifested by the rapid clearing of pulmonary edema, disappearance of gallop rhythm and pulsus alternans, and by an increased urinary output. I have seen papilledema disappear within 24 hours.

Our only objection to this form of management is that the reaction to Veratrum is sometimes severe and the vomiting may continue for 30 minutes or longer. We have treated well over 100 patients with hypertensive crisis and have observed hundreds of reactions to Veratrum viride and can safely state that we have never seen any serious effect from the sudden profound reduction of blood pressure.

On the contrary, we feel this marked hypotensive effect is a requirement if we are to treat effectively the emergency which the crisis brings on. The administration of Veratrum viride requires close observation of the patient, and the blood pressure should be checked frequently in order to individualize the dosage. The results of such treatment in hypertensive crises are much superior to those obtained with any other form of drug therapy. These patients must, of course, be cared for in the hospital. As the oral administration of Veratrum for the treatment of essential hypertension is prolonged over a period of several months, the clinical results may become increasingly less satisfactory; however, the reduction in blood pressure present is such that the use of the drug is very worthwhile. Certainly thus far in our experience no drug is as effective in the control of hypertension as Veratrum viride.

The gastrointestinal side effects of Veratrum at times are very disturbing, and we have tried to reduce these symptoms by using atropine. Atropine will lessen nausea if given before vomiting occurs; after the vomiting has commenced, however, there is very little benefit from its use. Dramamine,* in a dose of 50 mg. three times a day, has seemed to be of mild benefit in some patients but not in others. Banthine,* 50 mg. three times a day, has been helpful in allowing certain patients to take larger doses of Veriloid or Veratrum viride. Other symptoms such as dizziness, weakness, tingling, numbness, stiffness, fatigue or coldness of extremities may come at the peak of the Veratrum response. Postural hypotension has been noticed and, if the hypotensive effects of Veratrum are too great, syncope or collapse may ensue. During a severe hypotensive reaction the patient usually vomits and is extremely distressed; however, such symptoms are more alarming than dangerous. I, personally, have never seen a patient die from Veratrum effect and, to my knowledge, no death has been reported by other observers.

The use of the various forms of Veratrum alone

was so encouraging in the treatment of vascular crisis that the study was expanded to include the routine use of Veratrum in essential hypertension in the hope that the blood pressure could be controlled, crises might be prevented, and patients could be made comfortable for a considerable period of time. Unfortunately, the gastrointestinal side effects associated with administration of a full therapeutic dose of plain Veratrum presented something of a limiting factor. As a result, combined therapy was considered. The product employed was designated as Nitranitol P.V.* Each tablet contains:

Mannitol Hexanitrate 32 mg. (½ gr.)
Phenobarbital 16 mg. (¼ gr.)
Veratrum Alkaloids 1 mg. (1/60 gr.)

In calculating the Nitranitol P.V. dose of two tablets four times daily for patients with systolic pressures over 200, or one tablet four times daily in cases under 200, it was estimated that the amount of purified Veratrum fraction (8 mg. or 4 mg.) would be about ⅔ or ⅓, respectively, of the probable full therapeutic dose if Veratrum were the only hypotensive agent employed. It was hoped that the addition of phenobarbital and mannitol hexanitrate in the usual dosage would enhance the action of the Veratrum so that a majority of the patients would obtain gratifying symptomatic relief as well as objective decreases in blood pressure, and at the same time keep the dosage level of purified Veratrum at a low enough level to prevent nausea in a significant number of cases.

We have made a preliminary study of 24 hypertensive patients with the drug Nitranitol P.V. There has been a favorable therapeutic effect in all 17 of the 24 patients who tolerated the drug. In patients over 60, in whom nitrates are most effective, the compound has been particularly useful. Of seven cases who did not tolerate the drug, three suffered from Veratrum nausea, two complained of headache presumably due to mannitol hexanitrate, and two incurred a skin rash presumably from the phenobarbital. Further studies will be made to determine how long the beneficial effects in the remaining 17 patients can be maintained and the group will be enlarged to obtain a series of statistical significance.

Summary

Veratrum viride can be administered as the whole drug (Vertavis, Veratrone), as a purified extract or fraction (Veriloid, Anatensol), or in combination with mannitol hexanitrate and phenobarbital (Nitranitol P.V.).

Preliminary studies indicate that Veratrum products are useful in the treatment of vascular crises of hypertension; parenteral administration is frequently required. In routine treatment of essential hypertension Veratrum may prevent or diminish the frequency of such crises.

Combined administration using Nitranitol P.V. appears to be useful in that it permits a simplified or standard dosage schedule. As a result it is possible to give a quantity of purified Veratrum which reduces blood pressure but does not produce nausea as frequently as Veratrum products when used alone.

I wish to express appreciation to my former associates, Peter T. Bohan, M.D., and M. G. Berry, M.D., for their help and suggestions in the early work done on this paper; also to Irwin, Neisler and Company, and the William S. Merrell Company for supplying the drugs used in these studies.

Bibliography

1. Sollmann, T. H.: A Manual of Pharmacology, 7th Ed., Philadelphia, W. B. Saunders Company, 1948, p. 490.
2. Osgood, C.: Observations on the medicinal properties of the Veratrum viride, Am. J. Med. Sci. 16:296-309, 1835.
3. Wood, H. C.: A contribution to the knowledge of the physiological action of the alkaloids VIRIDIA, VERATROIDIA and VERATRIA of commerce, and of the resin of Veratrum viride, Am. J. Med. Sci. 59:36-53, 1870.
4. Krayer, O., and Acheson, G. H.: The pharmacology of the Veratrum alkaloids, Physiol. Rev. 26:383-446, 1946.

Committee Chairmen for 1953 Meeting

Dr. Howard C. Clark, president-elect of the Sedgwick County Medical Society, has announced the appointment of the following committee chairmen for the 1953 annual meeting of the Kansas Medical Society, to be held in Wichita, May 4-7, 1953:

General Chairman—Dr. Edward S. Brinton
Scientific Program—Dr. James B. Fisher
EENT Program—Dr. Norton L. Francis
Entertainment—Dr. Lester K. Nix
Reception—Dr. Lloyd P. Warren
Commercial Exhibits—Dr. Robert K. Purves
Scientific Exhibits—Dr. Bert E. Stofer
Publicity—Dr. D. P. Trees
Auxiliary—Dr. William H. Browning

A Towel Found in the Jejunum*

Homer B. Latimer, Ph.D.
Lawrence, Kansas

The finding of foreign bodies within the digestive tube and the abdominal cavity is not new, for Gould and Pyle ('37) have listed objects found by the Greeks, Romans and other cases in the 18th and 19th centuries. Crossen and Crossen ('40) have compiled a long list of cases, including sponges and other fabrics found in the intestines and abdominal cavity. One of the more recent cases is that described by Saltzstein and Rao ('47) of a sponge ulcerating into the ileum. Because of its size, location and the condition of the intestine, this case seems worthy of a published record.

This body of a colored woman, 72 years old, was one of the cadavers dissected in the anatomy laboratory. The cause of death was listed as a neoplasm of the left kidney. The body had been received, embalmed and held in one of the storage tanks until the fall of 1951, when it was brought into the laboratory. It was in good shape and, preceding the study of the abdomen, no anomalies had been found. It had only a moderate amount of fat.

The abdominal wall was wrinkled and creased as though fat had been lost before death. There were two faint scars visible, one a lower midline incision and the second a left lateral incision extending from a little below and about three cm. lateral to the umbilicus, to a short distance superior to it. The skin in the region of this second incision was heavy and wrinkled, and the scar was not easily seen. Both scars were old and it was difficult to determine their limits.

Between the umbilicus and the symphysis and in the midline was a protrusion of the skin about seven cm. in diameter. This skin was raised and irregular in contour and had little under it, or between it and the rest of the abdominal wall. When the skin was removed it appeared that the midline incision had not been completely closed at its upper end and only the hypertrophied fibers of the transversus abdominis muscle lay between the skin area and the fascia transversalis of the abdominal wall.

Some time after the cadaver had been dissected and the towel found, the following clinical history of the patient was obtained.

The patient was first admitted to the hospital in December of 1948. The diagnosis was senile dementia with ideas of persecution, the patient fearing the loss of money and possessions. She was kept a week or 10 days and no surgery was done.

She was admitted the second time 10 months later, on October 16, 1949. At this time she had an impairment of her speech and was unable to understand what was said to her. During the interval between the two hospital admissions she had been under the care of a private physician. She complained of pain in the upper left abdomen. She denied having had any operation or surgery at any time, and she never had had surgery at this hospital.

Physical examination: dehydrated, skin dry, blood pressure 152/85, rales in both chests, point of maximum intensity sixth interspace, aortic systolic murmur, and cardiac insufficiency. Irregular abdominal scar in lower midline around umbilicus. Liver not enlarged. Large mass in left side of abdomen and flank which extended from just below the costal margin to the left iliac crest. It was easily movable, hard and very tender. It appeared to be about 20 cm. in diameter.

She was anemic and gave no history of ever having had gastrointestinal work of any kind. She gave no indication of trouble of this sort.

Laboratory tests upon admission: blood 1,460,000, 29 per cent hemoglobin, 4.5 grams hemoglobin, hematocrit 17, van den Bergh 74, blood sugar 76, non-protein nitrogen 27, serology negative, white cells 2,750, lymphocytes 34, eosinophiles 2. The impression of the intern upon admission of this patient was (1) ptosis of the left kidney; (2) ptosis of the spleen; (3) splenomegaly, and (4) malignancy of the left kidney.

An excretory pyelogram was made on October 22, but no definite diagnosis could be made. The kidneys seemed normal in position and function, but there was apparently some sort of soft tissue mass which seemed to displace the left kidney upward and medially, and the radiologist felt that it was a retroperitoneal mass which suggested the possibility of a sarcoma or similar mass around the kidney. The death certificate was dated October 25.

When the abdominal cavity was opened in the course of the dissection, it was found that the right ovary, together with the right ovarian tube and the right broad ligament, had been removed and the uterus was tipped to the left. It appeared normal and evidently was a parous uterus. This right ovary was the only organ missing from the abdominal cavity.

An oval or kidney shaped enlargement of the jejunum was found in the left hypochondriac region, or immediately anterior to the left kidney. This was 25 cm. from the duodenojejunal junction. Both

*Department of Anatomy, University of Kansas.

kidneys appeared normal in gross appearance. This enlargement was palpated while still undisturbed in the cavity, and it appeared that the supposed neoplasm filled the lateral part of the mass and the intestinal wall between the two ends, or the side next to the midline of the body, was softer to the touch. Apparently this was the open part through which the intestinal contents were passing. This medial part was slightly concave superior-inferiorly as shown in Figure 1. The entire lateral part seemed uniformly firm to the touch.

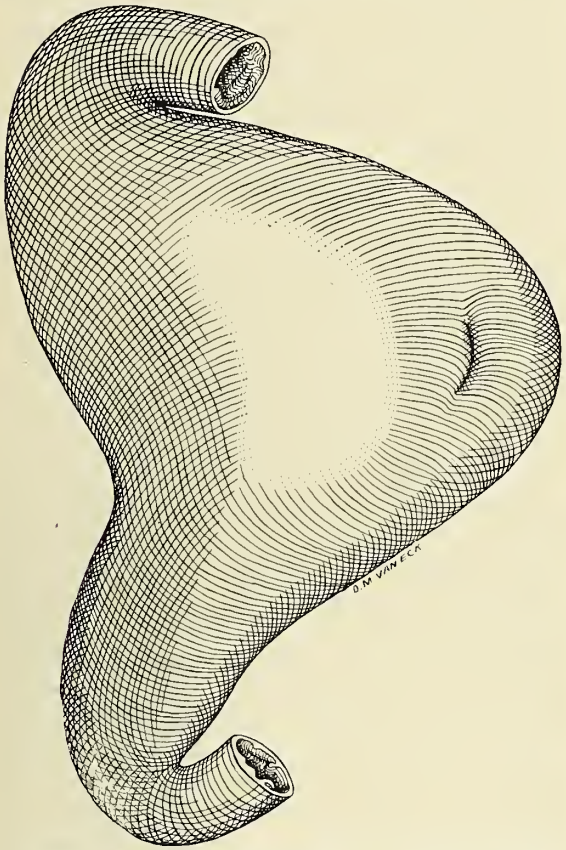


Figure 1. Drawing showing the anterior surface of the jejunal enlargement. Peritoneum has been removed showing opening through to posterior surface.

The entire digestive tube was removed later on, and there were no adhesions in this region, nor in any part of the entire abdominal cavity. The digestive tract appeared to be in good condition. The small intestine measured only about two meters in length, but intestines of this length are seen in the anatomy laboratory. The small intestine did seem to be somewhat greater in diameter than usual, but when it was opened the walls and mucosa appeared to be in normal condition. The stomach and the large intestine also appeared to be normal. Aside from this dilated portion, the entire tract would have been listed as a normal digestive tract.

This dilated portion measured 12 cm. in its superior-inferior diameter and the same in its transverse diameter, and 6.5 cm. in thickness or anterior-posteriorly. Like the rest of the digestive tube, it was not attached to the abdominal wall by adhesions, but was perfectly free, aside from its normal mesentery. The diameter of the intestine just proximal to this enlargement was 3.5 cm. and at the distal end it was 2.5 cm.

To open the "neoplasm" an incision was made along the lateral side or along the greater curvature, as shown in Figure 1. At this time the external surface was uniformly covered by peritoneum and the open and depressed area shown in Figure 1 was not seen. The knife went through the intestinal wall in a normal manner, but then the cutting became difficult. The knife seemed to be cutting a heavy or "stringy" substance. The incision was lengthened somewhat, and inside the cavity was found a heavy mass which first appeared like a folded mass of chamois skin. This was then easily pulled out and it proved to be the towel shown in Figure 2.



Figure 2. Photograph of towel showing foldings and eroded areas. Fine red lines woven into the cloth are not shown in the photograph, but are plainly visible in the towel itself. Notice the hem in the upper and lower borders.

This towel was completely impregnated with intestinal contents, and it required much careful washing to cleanse it. After it had been cleaned it was pinned out on a board and measured 40 x 54 cm. The creases were still evident although not well shown in the photograph, indicating that it had been folded once longitudinally and twice transversely. Some of the cuts at the two lower corners appeared as new cuts, made by the knife when the

first incision was made. Not well shown in Figure 2 are the fine red longitudinal lines woven into the cloth and spaced about five cm. apart. These are easily seen in the specimen where the cloth is in good condition and where the weave of the cloth is evident. The hems at the two ends can be identified. The cloth is most damaged in the regions which were on the outside when it was folded. It would appear that the right half, as shown in Figure 2, was folded inside and hence left in better condition, except in the upper right corner where it is badly eroded. This resembles the towels used to drape the body for surgery, and the folds are those of a sterilized towel.

After the towel had been removed this enlarged part of the intestine was carefully examined. A connecting mass or "bridge" of tissue was found (Figure 3) extending from the anterior to the



Figure 3. The enlargement opened to show the inner surface. Note the connection or "bridge" between the anterior and posterior surfaces. Area of plicae and villi are not shown between the openings, down the central part of the drawing.

posterior wall. This was four cm. long and it was about three cm. from the lateral wall, or the lumen of this opening between this "bridge" and the left lateral part of the intestine had a diameter of three cm.

Next the external surface was carefully reexamined, and a slightly depressed semi-lunar region was found on the anterior surface. The peritoneum was removed and this area is shown in Figure 1. The appearance of the posterior surface was the same. After the peritoneum covering this area had been removed, the blunt end of a dissecting probe could be passed through the opening in the connecting mass or "bridge" until it was stopped by the peritoneum covering the posterior surface of this enlarged part of the jejunum. The towel was found on both sides of this connecting mass. The surfaces of the connecting mass adjacent to the lumen of the intestine were covered with normal intestinal epithelium with plica circulares and villi. The part of the lumen to the left of the connecting mass seems to have retained to a greater degree its normal cylindrical shape as well as its normal epithelium.

The inside of the enlarged jejunum, together with this connecting mass, is shown in Figure 3. The incision was made along the lateral side and the anterior part turned to the left in the drawing. The top represents the intestine entering the jejunum, and the opening at the lower part of the figure shows the jejunum leaving this enlargement. The connecting bridge separates this cavity into a lateral or more tubular space and a more medial and also a more spherical space. Connecting the inferior edges of this "bridge" is a fold, not well shown in this figure but which can easily be felt in the specimen. This ridge or fold seems to arise near the caudal end of the connecting mass or "bridge" and extends over the two surfaces and medial border to the distal edge of the "bridge" shown on the other side of the figure. This ridge was more easily seen and felt on the inner surface. This appeared as though there were a thickening or folding of the intestinal wall along this line. This will be discussed later.

The inner surface of this enlarged part of the jejunum was carefully studied with the aid of a binocular dissecting microscope. Around the periphery of the area and covering the plicae circulares, good sized normal villi could be seen. Not shown in Figure 3 was a series of plicae circulares, not quite as high nor as well marked as around the periphery, extending across the area between the two openings and along the lesser or medial curvature of the enlarged intestine. Then, as one examined the epithelium toward the center of the anterior and posterior surfaces, the villi were lost, with only the intestinal glands showing in transverse section. In the central parts of the anterior and posterior surfaces all the epithelium seemed to have been lost, and the cavity was lined with the connective tissue of the submucosa. These transitions were not uniform. Areas with villi could be found surrounded by areas without any villi, or even without any intestinal mucosa. The areas covered with villi seemed to be in depressed regions.

Pieces of the adjacent intestine were examined and the villi were clearly visible, covering the plicae. These pieces were straightened out nearly flat, and

with a sharp scalpel the tops of the villi were removed. This was done with a light scraping action rather than attempting to cut off the ends of the villi. The results appeared like areas of this enlarged portion, or the intestinal glands appeared in transverse section. These areas were further eroded with the scalpel, and after all of the epithelium had been removed there appeared the connective tissue fibers of the submucosa. In other words, these pieces of normal intestine were made to resemble the regions of the enlarged part, suggesting that the towel had worn away the villi where there had been some "wear." In other areas subjected to greater action of the towel, all of the epithelium had been worn away, leaving the tunica submucosa lining the cavity of the intestine. Whether this is what had happened or not we do not know, but areas of this enlargement appeared under the binocular just as the areas of the intestine which had lost part or all of their epithelial layer.

The known facts concerning this towel have been given, and very likely the report should stop at this point.

The question is whether this towel was swallowed or left in the abdominal cavity at the time of one of the operations. Many cadavers in our laboratory have been found with various objects in the stomach, objects which, because of their nature, had obviously been swallowed. Hallett ('47) described several cases of swallowed foreign bodies, and one chapter in the book by Crossen and Crossen ('40) describes swallowed objects. This towel would have been rather large to have passed completely through the stomach and the duodenum. The other route would be from the abdominal cavity through the wall of the digestive tube into its location in the jejunum. Most of the sponges have been found passing into the colon or rectum. Only a few have been found passing into the small intestine, and these chiefly into the ileum. In several cases in which a sponge passed into the intestine, good sized or even large areas of adhesions have been found, such as the cases described by Reed ('46) and Saltzstein and Rao ('47). Crossen and Crossen ('40) described a sponge forming a "lump the size of a man's wrist, five or six inches long, in the lumen of the small intestine, the intestine itself being entirely free." This was in the jejunum four or five feet from the stomach. There were adhesions in the region of the stomach, and they concluded that the sponge had eroded into the stomach and then passed on down the tract to its location in the jejunum. There were no adhesions any place in the abdominal cavity in this woman.

If the erosion into the intestine is accepted, then this fold or thickened ridge connecting the caudal ends of this partition or "bridge" could be accounted for by the bulging out of the intestine above the "bridge" and this bulge meeting the intestine below and ultimately fusing with the inferior part of the jejunum. A part of the towel then was held by this portion or "bridge" and the new fused portion of the intestine provided a passageway for fecal material. When the enlargement of the jejunum was first palpated, the concave side felt soft as though it were an open passageway for the intestinal contents. The intestine proximal to the enlargement was slightly larger than that leaving this region. The part inferior to the enlargement was not collapsed as was the intestine in case No. 168 described by Crossen and Crossen ('40).

The entire digestive tube was carefully examined for any evidence of scars of any kind, but none were found. With the healing of the abdominal wall with so little visible scarring, one might expect nothing to remain visible in the intestines. The condition of the two scars on the abdominal wall would indicate that they had been made some time before her death. Hence there may have been sufficient lapse of time to have removed all of the adhesions if there had been any.

Each of these two postulated routes of entry for this towel seems to offer rather serious difficulties. The facts as far as they are available are presented. This towel was found in the jejunum 10 inches from the duodenojejunal junction, and that region of the jejunum had undergone marked changes as described. How it reached this position is unknown.

This report would never have been possible had it not been for the three students who were dissecting this cadaver: Mr. Francis R. Applegate, Mr. James M. Handley and Mr. Joe W. Smith. First they called our attention to this mass, asking for an explanation, and then throughout the study they carefully saved the remainder of the digestive tract and were inconvenienced and interrupted many times by further examination of the cadaver and by inspection of this material by many who were interested. Our thanks are also due to many others, physicians and faculty, who have looked at this material and have given valuable suggestions. To all of these we wish to express our most hearty appreciation. Our special thanks go to Dr. A. Denton Vail for his aid and advice.

Bibliography

Crossen, H. S., and Crossen, D. F., 1940, Foreign bodies left in the abdomen. St. Louis, C. V. Mosby Co.

Gould, G. M., and Pyle, W. L., 1937, Anomalies and curiosities of medicine. New York, Sydenham.

Hallett, G. St. J. 1947, Swallowed foreign bodies, some cases treated in a military hospital. B. Med. J., 1, 334-335.

Reed, K. E. E., 1946, Ulceration of a foreign body through the small intestine. Brit. Med. J., 1, 315.

Saltzstein, H. C., and Rao, J. O., 1947, Large melena caused by sponge ulcerating into lumen of ileum more than 20 years after celiotomy. Ann. Surgery, 125, 249-250.

PRESIDENT'S PAGE

Dear Doctor:

The events of the past few days, while being particularly fortunate as far as the medical profession and its national position are concerned, present some very definite considerations which we think should be of interest to all of our membership.

We know that the following situations do obtain. First, and probably most important, is the fact that we have the assurance of a responsible government in Washington again. Second, we have the realization that the medical profession, locally and nationally, is in a much more favorable position now with regard to our "point of departure" upon the problems of the next four years or more. These two factors bring responsibilities.

These responsibilities, if correctly evaluated, imply an increase in our over-all obligations. Having become to a greater extent members of the team itself, it is our duty and obligation to cooperate with the program as completely as possible. Socialized medicine, or the total program of socialization of this country, cannot be prevented by a single individual. This will require the efforts of every right minded citizen, and particularly the efforts of each of us as physicians. The importance of being not only a good doctor but a good American citizen has never been as obvious as it is now. Let us all make a strenuous effort to become thinking, active, working American citizens.

We are approaching once more the great American day of Thanksgiving. May we approach this season of the year with a sincere and conscious recognition of what that tradition means to the United States, particularly because we realize our many definite reasons for being thankful.



EDITORIAL COMMENT

Fifth Annual Cancer Conference

The Fifth Annual Mid-West Cancer Conference will be held at the Broadview Hotel, Wichita, on Thursday and Friday, April 2 and 3, 1953. Physicians who attended these conferences in the past will remember them to be among the outstanding scientific events of the year. The committee already has plans well under way toward making this fifth annual conference exceptional even in comparison with previous programs.

Guest speakers will soon be announced, together with the program topics. Those already engaged for this event give promise for the presentation of a series of papers that will long be remembered. Presentations for the coming conference, like those of the past, will be designed to be of interest to evey physician who has occasion to see a cancer patient. Topics will be varied to appeal also to those specializing in the different branches of medicine.

The Sedgwick County Medical Auxiliary is preparing a schedule of events of interest to the wives, and they also will enjoy the banquet which will be held in connection with this conference.

As in the past, all members of the Kansas Medical Society and their wives are invited to attend. Also invited are physicians from any other state. Hotel reservations are available by writing directly to the Broadview Hotel in Wichita, and since this conference is growing annually in attendance, it is recommended that plans be made early for this meeting. At least the dates, April 2 and 3, should be recorded now. As the official program appears in the near future, more definite plans may then be made.

Journal Subscriptions

The Journal has discovered that long existing postal regulations governing Second Class mailing privileges have not been complied with and that this permit will be cancelled unless required changes will be effected as of January 1, 1953. Because a Second Class permit is of very considerable advantage to the Kansas Medical Society, the Editorial Board and the Council have voted to alter certain procedures in this regard.

The requirement most immediately affecting the membership is that the Journal must be individually subscribed for, and each member wishing to receive the Journal must pay at a rate of not less than half the established subscription price. This provides no change regarding dues-paying members since the Society has regularly apportioned part of the dues from each member toward his Journal subscription. The difference involves those members who are exempt from the payment of dues or assessments.

In the past, the Society has gladly paid those subscriptions. It is now learned that this is contrary to postal regulations because each subscription must be individually paid. Therefore, beginning with the January, 1953, issue of the Journal, honorary members, members who have been granted a leave of absence, and members in service, all of whom are exempt from the payment of dues, will no longer receive the Journal unless they individually subscribe and pay to this office, 512 New England Building, Topeka, Kansas, $2.00, which is half the established annual subscription rate.

The Society and the Journal regret that this has become necessary because it has always been the policy to provide non-dues-paying members with all privileges of membership. Actually, that is still in effect and is varied only because the Journal may not be mailed under Second Class privileges except upon individually paid subscriptions. It is recommended that those members who are involved in this change mail their $2.00 promptly to enable the Editorial Board to prepare its January mailing list well in advance of the date the publication is issued.

President's Commission to Report

During the spring President Truman appointed a special committee to study the health needs of the nation. He quite frankly advised that the findings of this committee, known as the President's Commission on the Health Needs of the Nation, would determine the type of socialized medicine legislation that would be promoted during the next session of the Congress.

The committee, under the direction of Paul R. Magnuson, M.D., has conducted a series of hearings throughout the summer, two of which the Kansas Medical Society was invited to attend. Dr. J. L. Lattimore of Topeka appeared before the committee in Washington, D. C., being asked to speak principally upon the general topic of Kansas methods for providing medical care for the indigent. Later during the summer Dr. W. F. Bernstorf appeared before the committee in St. Louis, being asked to speak upon the Kansas plan for providing medical care to rural areas. A great amount of testimony has also been received from individuals and organizations outside the medical profession, and of

course the findings of the committee are not known at present.

The committee is expected to report to the President on about December 1. Rumor has it that this committee will advise against all-out socialized medicine, but will criticize numerous segments of the present system of medical care. If the rumor is correct, and it cannot currently be substantiated, voluntary health insurance will receive a major share of the critical attention. Just what effect such findings will have upon future proposed legislation can only be conjectured. However, if the committee should follow the usual pattern already set by the proponents of socialized medicine, they will attack the cost of such insurance and will use as a supporting argument that half of the people in the nation are not protected through these plans. Again, this can only be guessed at, but if that proves to be the case, it appears that the only solution they can arrive at is to advocate the reduction of cost through federal subsidies and enrollment increases through compulsion. If that is not socialized medicine, then it most certainly is national health insurance, which the advocates of socialized medicine have regularly called their previous programs, and medicine will again face another round of its battle for survival. On the other hand, the committee may come up with some totally new idea, and in that possibility the December report shall be anticipated with more than usual interest.

Definitions

A CONSERVATIVE is one who thinks of the welfare of his family and his country first; who is willing and anxious to stand on his own two feet; earn his own living; save what he can; one who wants to spend his own savings; live under the American Constitution and the Bill of Rights; develop himself and his country according to the American system of free-incentive enterprise.

A "LIBERAL" is a Socialist, one who is determined to be liberal in the spending of someone else's money, not his own. He believes in handouts to the have-nots who won't support themselves; he is an internationalist and, as a do-gooder, demands that America support the underprivileged of the world. He is determined that the American taxpayer support the bankrupt governments of Europe, arm them and defend them with American troops at our expense.

At home, he is for free medical care, government control of schools, control of industry, higher pay for less work.

The "Liberal" is convinced that he is heaven-ordained to run the world and demands that billions of our tax money be handed over to him to spend as he pleases without the necessity of accounting for it. As a "Liberal" hates to spend his own money, he always gets himself in position to spend public funds or other people's money, for which he always arranges for ample compensation for himself. He is for government control of the nation and its industries, the support of the people from the cradle to the grave. In other words, he is a Socialist, no matter what flag he sails under at the moment.—*E. B. Gallaher in Clover Business Letter.*

Conference on Heart Disease

A one-day conference on heart disease, designed especially for the general practitioner, will be held at Winter V.A. Hospital, Topeka, on December 11 under the sponsorship of the Kansas Medical Society Committee on the Study of Heart Disease. Enrollment is open to all physicians, and no expense is involved except payment for a luncheon to be served at the hospital. The course will begin at ten o'clock in the morning.

Speakers will include several members of the faculty of the University of Kansas School of Medicine, prominent physicians of the state, and members of the medical staff at the hospital. The cooperation of the hospital staff makes the meeting possible.

An informal hospitality period following the day's program will present an opportunity for discussion.

A.M.A. Clinical Session in Denver

A number of Kansas physicians have indicated interest in the A.M.A. Clinical Session, to be held December 2-5, since the meeting this year will be in this section of the country, in Denver's newly enlarged municipal auditorium.

The meeting will open Tuesday morning for registration and viewing of scientific and technical exhibits and medical motion pictures. In the afternoon there will be colored television originating from Denver General Hospital, general lectures and eight separate clinical presentations. Nearly 200 lectures will be given during the session, covering obstetrics, pediatrics, diseases of the chest, cardiovascular diseases, neurology and psychiatry, fluid balance and kidney problems, traumatic surgery, medical therapy, hypertension, bone tumors, and other basic subjects.

Temporary Accreditation to Topeka Hospital

The school of nursing at St. Francis Hospital, Topeka, was not listed among the Kansas schools approved for temporary accreditation by the National Nursing Accrediting Service, as published in the September issue of the *Journal.* Since publication of that issue, the school has been approved for temporary accreditation, making all schools of nursing in Topeka now on an accredited basis.

Injunction Against Hoxsey Cancer Clinic

A victory for medicine resulted from a decision recently issued by the U. S. Court of Appeals for the Fifth Circuit, in the case of the United States versus the Hoxsey Cancer Clinic, a partnership, and Harry M. Hoxsey, an individual. Reversing the judgment of the District Court at Dallas, Texas, the Court of Appeals issued an injunction prohibiting the defendants from distributing in interstate commerce its liquids intended for the treatment of cancer in man.

The Hoxsey Clinic is located in Dallas, and ships its drugs to patients in many other states. According to the unanimous opinion of the court, "The overwhelming weight of the credible evidence requires a conclusion that the representation that the Hoxsey liquid medicines are efficacious in the cure of cancer is. . . false and misleading. The evidence as a whole does not support the finding of the trial court that 'some it cures, and some it does not cure, and some it relieves somewhat.'"

People in many parts of the country are taking the Hoxsey medicines. For the information of physicians who are asked about the clinic, the principles laid down in the court opinion are reported below.

". . . There is only one reliable and accurate means of determining whether what is thought to be cancer is, in truth and fact, actually cancer. This requires a biopsy, a microscopic examination of a piece of tissue removed from the infected and diseased region."

". . . The opinion of a layman as to whether he has, or had, cancer, or a like opinion as to whether he has been cured and no longer bears the disease, if, in fact, it ever actually existed, is entitled to little, if any, weight."

". . . Despite the vast and continuous research which has been conducted into the cause of, and possible cure for, cancer, the aggregate of medical experience and qualified experts recognize in the treatment of internal cancer only the methods of surgery, x-ray, radium and some of the radio-active by-products of atomic bomb production."

". . . Upon such subjects a court should not be so blind and deaf as to fail to see, hear and understand the import and effect of such matters of general public knowledge and acceptance, especially where they are established by the overwhelming weight of disinterested testimony."

A significant award, unique in medical journalism, has been bestowed upon *GP*, official publication of the American Academy of General Practice. It was chosen for honors by the American Institute of Graphic Arts, whose panel of judges complimented it on its excellence in graphic presentation.

Service Separations

As a service to physicians and communities in this state desiring additional medical personnel. the Journal of the Kansas Medical Society will publish in this column each month the names of medical officers who will shortly be separated from the armed forces. These are men who volunteered from Kansas, and many of them will probably be interested in finding locations in this state. Anyone interested in contacting these physicians may write to the address here given.

Niles A. Borop, Jr., M.D.
U. S. Army Hospital
Camp Carson, Colorado

Frank C. Brosius, Jr., M.D.
126 South Fountain
Wichita, Kansas

Herbert Bunker, Jr., M.D.
U. S. Army Hospital
Fort Riley, Kansas

Eran O. Burgert, Jr., M.D.
2620 East Waterman
Wichita 7, Kansas

Mayer Fisch, M.D.
Winter VA Hospital
Topeka, Kansas

Charles C. Gilkey, M.D.
1731 Clay Street
Topeka, Kansas

Charles R. Hopper, M.D.
172 Artillery Loop
Fort Sam Houston, Texas

Edwin R. King, M.D.
1708 First Street, N.W.
Washington 1, D. C.

Robert V. Kirk, M.D.
248 West 12th Street
Horton, Kansas

David Lukens, M.D.
129 West 19th Street
Hutchinson, Kansas

Ward A. McClanahan, M.D.
1425½ Buchanan
Topeka, Kansas

Max E. Musgrave, M.D.
Denton, Kansas

James R. Nolan, M.D.
205 South Bethany
Kansas City, Kansas

Walter J. Nowers, M.D.
305 Handy Circle, Van Horne Park
Fort Bliss, Texas

Marion C. Pearson, M.D.
Route 3
Clifton, Kansas

Kenneth D. Powers, M.D.
1130 Kentucky
Lawrence, Kansas

William J. Reals, M.D.
Wichita Hospital
Wichita, Kansas

Joseph E. Seitz, M.D.
Wakeeney, Kansas

Richard C. Tozer, M.D.
Winter V.A. Hospital
Topeka, Kansas

Harold M. Voth, M.D.
2115 West 10th Street
Topeka, Kansas

John L. Weaver, M.D.
4206 Prairie Lane
Mission, Kansas

Robert Weimer, M.D.
206 Third Street
Fort Leavenworth, Kansas

George A. Westfall, Jr., M.D.
Hertzler Clinic
Halstead, Kansas

Lyle E. Wonderlich, M.D.
612 Eighth Street
Concordia, Kansas

BLUE SHIELD

Questionnaire on Home Coverage

While a significant number of physicians in Kansas favor some form of home coverage for serious illnesses by Blue Shield, there was enough opposition to the idea to make it still a highly debatable move. Out of 345 doctors replying to a questionnaire sent out by the Kansas Medical Society on the subject, 158 indicated they would favor Blue Shield taking this step in the direction of home coverage for serious illnesses. However, 132 opposed the plan with 55 indicating no opinion. It is interesting to note that of the total number replying to the questionnaire, the vast majority indicated that their medical practice for serious cases was usually done in hospitals. Only 50 doctors indicated a practice exclusively outside a hospital.

There is some doubt in reviewing the results of the questionnaire as to whether or not all those replying understood that the subject under study was primarily for so-called serious cases treated in the home. This is indicated by the answers to one question which asked the doctors to suggest certain types of cases which might fall under this coverage. A great number of the replies listed straight coronary conditions, diabetes without qualifications and miscarriages, and several listed senility as a possible illness to be covered.

The primary arguments by those in favor of the coverage were as follows:

1. That this form of coverage would be appealing to a great number of people in rural areas who do not ordinarily use the hospital.
2. That coverage of home cases might cut down the instance of hospitalization and thus save Blue Cross funds.
3. That such a program could be controlled through proper reporting and would not be significantly abused.
4. That such a plan would help Blue Cross-Blue Shield in meeting competition.
5. That it would help to meet the problem in those areas where hospital beds are in short supply.
6. That the plan would help Blue Shield in its physician relations by bringing into the fold that group of doctors who do not practice in the hospital.

Major arguments against the plan were as follows:

1. It would increase the Blue Shield rate structure and be resisted by the public.
2. That not enough people need this type of coverage since most serious illnesses are hospitalized.
3. That the plan would be open to considerable abuse.
4. The plan would be misunderstood by the public since it would have to be limited to certain illnesses, and many people would not understand why one type of illness would be covered and another not.
5. That the mileage factor would be an insurmountable problem.

One of the questions on the questionnaire attempted to get an answer as to what the doctors would expect in the way of payment for home calls. Of those replying to this question the following tabulation resulted:

$3.00 per call	94
$4.00 per call	49
$5.00 per call	64

The predominant view as to what kind of deductible feature should be incorporated into the plan was that a three-visit deductible should be made. However, a significant number thought that the deductible should be five visits, whereas 41 doctors thought there should be no deductible.

Several verbatim comments are listed below to give an idea of the interest shown in the questionnaire:

THOSE NOT IN FAVOR:

It is not practical. Would create bad feeling as far as Blue Shield is concerned. No way it could cover all the expenses without making policy prohibitive. People would expect total cost to be paid. The 25 per cent which cannot pay for long home illness could not or would not be able to carry Blue Shield.

* * *

Encouragement of home care for "serious illness" is ridiculous if we are to assume that hospital care has anything to offer this category patient. Modern transportation is available in most of Kansas.

* * *

Increase in costs would not warrant inclusion in plan. Too many members are objecting to or dropping out of present plan because of increased cost. Many would drop Blue Shield and retain Blue Cross if Blue Shield costs increase.

* * *

In view of our increasing number of small hospitals in more rural areas, I feel above plan would complicate matters and tend to not support smaller hospitals.

* * *

VERY difficult. Every drunk, dope addict, neurotic, undiagnosed or undiagnosable ache and pain of old age would climb aboard for a ride on this program. Would have to be very specific and lim-

ited insurance or it would bust the insurance company quickly.

* * *

THOSE IN FAVOR:

For communities without hospital facilities, the service is definitely indicated. When epidemics occur and hospital space is unavailable, it doesn't seem fair to penalize subscribers for this condition.

* * *

Have urged this sort of program repeatedly at Blue Cross-Blue Shield Physician Relations Committee meetings. Believe it can be worked out if full cooperation of doctors can be obtained.

* * *

Blue Shield-Blue Cross losing appreciable number of subscribers to other insurance plans that offer or claim to offer home services. I feel the plan could best be worked out by our organization and feel it will be necessary before long.

* * *

By payment of home calls many hospital days may be saved, by dismissing patient earlier or not admitting to hospital at all. Blue Cross enrollment would probably increase in rural areas where hospitals are not close by.

* * *

Yes! We are 20 miles from hospital, beds not always available. These people not accustomed to hospital care and hard to get some of them in.

* * *

The doctors not having access to hospitals have a legitimate right to feel Blue Shield is shunting their practice to the more favorably located physicians.

* * *

Too much premium is paid for sending patients to hospital. Many minor cases are sent there in order to collect the insurance.

* * *

Chronically ill are kept in hospitals because they have Blue Shield. In the long run it might save Blue Shield money.

* * *

The results of the questionnaire will be considered carefully by the Fee Committee of the Kansas Medical Society and a further report of their recommendations will be made.

Kansas Trudeau Society Meets

A meeting of the Kansas Trudeau Society was held at Pittsburg on October 2, and the following officers were elected for the coming year: president, Dr. Lawrence E. Wood, Kansas City; vice president, Dr. Andre Baude, Topeka; secretary-treasurer, Dr. Paul H. Wedin, Wichita. Dr. Gerald B. Pees, Iola, was selected to represent Kansas on the Advisory Committee of the American Trudeau Society.

Speaker at the meeting was Dr. Richard P. Jahn, of Marquette University School of Medicine, who discussed "Recent Advances in the Diagnosis and Treatment of Pulmonary Emphysema."

Committee on Pathology Appointed

At the request of the Council of the Kansas Medical Society, Dr. W. F. Bernstorf, president, has appointed a special committee on pathology. The chairman of this committee is Dr. John L. Lattimore, Topeka, and the members are Dr. Robert E. Stowell, Kansas City; Dr. B. E. Stofer, Wichita; Dr. T. R. Hamilton, Kansas City, and Dr. N. P. Sherwood, Lawrence.

This committee will be interested in problems relating to pathology and laboratories in Kansas.

Patronize Journal advertisers.

DEATH NOTICES

BESSIE BELLE LITTLE, M.D.

Dr. Belle Little, 81, an active member of the Riley County Society, died at her home in Manhattan on September 24. She had retired from practice last December because of poor health. She was graduated from Women's Medical College, Philadelphia, in 1906 and began practice in Manhattan after her internship in Boston. Dr. Little's work was chiefly among women and children, although she engaged in general practice. With her father, the late Dr. Charles F. Little, she founded a hospital in Manhattan and continued to operate it until 1936, when it was sold to the Sisters of St. Joseph and became St. Mary Hospital.

* * *

JAMES DINWIDDIE BOWEN, M.D.

Dr. James D. Bowen, 46, Topeka surgeon, died October 3 after an illness of two years. He was a graduate of Cornell University Medical College with the class of 1931 and served his internship at Ford Hospital, Detroit. He practiced four years in Whiting and then moved to Topeka to be associated with his brothers, Dr. Harry J. Bowen and Dr. Clovis W. Bowen. He was an active member of the Shawnee County Society and a fellow of the American College of Surgeons. During World War II he spent 32 months in the Caribbean area with the Army air force.

ACTIVITIES OF MEMBERS

Dr. C. V. Black, Pratt, has been named Pratt County health officer to replace Dr. F. P. Wolff, who reported for military duty at the Navy Air Station, Corpus Christi, Texas, November 1.

* * *

Dr. Charles V. Haggman, Scandia, who has delivered more than 1,000 babies in his practice of 51 years there, was honored at a community celebration on October 10. He was also guest of honor at a staff dinner at St. Joseph's Hospital, Concordia, on October 15. He retired from practice on November 1 and with Mrs. Haggman went to Kingsport, Tennessee, to live with a daughter.

* * *

Dr. Clarence H. Benage, Pittsburg, was appointed last month to serve as chairman of a Kansas Professional Committee for Eisenhower and Nixon. Dr. Elmer L. Henderson of Louisville is chairman of the national organization, set up as a bi-partisan committee not affiliated with either political party.

* * *

Dr. John M. Anderson resigned on November 1 as superintendent of the Topeka State Hospital to return to private practice in Atlanta, Georgia.

* * *

Dr. Leslie E. Knapp, Wichita, became a fellow of the International College of Surgeons at a meeting held in Chicago last month.

* * *

Dr. Dwight Lawson, Topeka, was named medical director of Kansas Vocational Rehabilitation recently. He replaces Dr. Charles R. Rombold, Wichita, who resigned after many years service.

* * *

Dr. Morgan L. Mollohan, Seneca, announces that Dr. Wesley A. Innes is now associated with him in practice. Dr. Innes was graduated from the University of Kansas School of Medicine and practiced in Excelsior Springs before being called to active duty with the Navy, from which he was recently released.

* * *

Dr. William A. Smiley, Jr., Junction City, became a fellow of the American College of Surgeons at a meeting held in New York late in September.

* * *

Dr. R. W. Edwards, Pratt, was recalled to active duty with the Navy on October 15. He was sent to the U. S. Naval Hospital, San Diego.

* * *

A number of Kansas physicians took part in a celebration held at the Hertzler Clinic, Halstead, on September 21, the 50th anniversary of the founding of the clinic. Among them were Dr. L. O. E. Peckenschneider, Halstead, toastmaster; Dr. V. E. Chesky, Halstead; Dr. H. R. Wahl, Kansas City, and Dr. Lyle F. Schmaus, Iola.

* * *

Dr. Robert E. Hull has returned from service in the Navy and is now associated in practice with Dr. C. L. Scuka, Wichita.

* * *

Dr. B. C. Beal, Clearwater, was guest of honor at a community celebration on October 10. Dr. Beal recently completed 50 years of medical practice. The celebration included a parade, a luncheon and a program.

* * *

Among Kansas physicians who took part in a meeting of the Kansas City Southwest Clinical Society last month were Dr. Maurice J. Ryan, Dr. O. W. Davidson, Dr. W. H. Algie, and Dr. D. N. Medearis, who presided at different sessions; Dr. E. Grey Dimond, who spoke on the mechanism of congestive heart failure; Dr. Sloan J. Wilson, who discussed secondary anemias and pseudoanemias; Dr. A. M. LeMoine, Jr., who talked on common eye injuries; Dr. F. J. Nash, who took part in a panel discussion, and Dr. Robert B. Wilson, who spoke on sinus disease.

* * *

The Cook County Graduate School of Medicine, Chicago, announced last month that three Kansas physicians were enrolled there for postgraduate work, Dr. Denman T. Gammell of Hugoton, Dr. William R. Brenner of Larned, and Dr. Walter J. Pettijohn of Russell.

* * *

Dr. William P. Williamson and Dr. Clarence L. Francisco, both of Kansas City, became fellows of the American College of Surgeons at a meeting held in New York City recently.

* * *

Dr. L. A. Latimer, Alexander, was guest of honor at a dinner meeting of the Rush-Ness County Medical Society, September 26. Dr. Latimer is retiring after 43 years of practice. The Society reported, "We can truly and sincerely say that Dr. Latimer has earned the respect, confidence and admiration not only of his patients but of all the doctors who have known him."

* * *

Dr. W. F. Bernstorf, Winfield, president of the Kansas Medical Society, Dr. H. H. Jones, Sr., also of Winfield, and Dr. W. Clarke Wescoe, dean of the University of Kansas School of Medicine, were speakers at the dedication of a new annex of Newton Memorial Hospital, Winfield, on September 28.

* * *

Dr. Charles A. Crockett, Kansas City, reported

at San Diego on October 28 for active duty in the Navy medical corps.

* * *

Dr. Thomas G. Orr, of the University of Kansas Medical Center, was Kansas governor on the Board of Governors of the American College of Surgeons at its meeting in New York City in September.

* * *

Dr. T. F. Morrow, Wichita, is co-author of a paper, "Insulin Coma and Psychotherapy," published in the October issue of the A.M.A. Archives of Neurology and Psychiatry.

* * *

Dr. Herbert C. Miller, professor of pediatrics at the University of Kansas School of Medicine, spoke on "Pathogenesis of Hyaline Membranes" and "Treatment of Bulbar Poliomyelitis" at a meeting of the Texas Pediatric Society in Dallas last month.

* * *

Dr. A. J. Horejsi, Ellsworth, has been named by the Kansas Heart Association to conduct a public meeting on heart disease at Ellsworth on November 13.

* * *

Dr. G. M. Martin, director of the Division of Maternal Health and Child Welfare of the Kansas State Board of Health, began a year's postgraduate work at Harvard University in September. He plans to return to Topeka on completion of the course.

* * *

Dr. Robert E. Stowell, chairman of the Department of Pathology and Oncology at the University of Kansas Medical Center, discussed "Evaluation of Cancer Serodiagnostic Tests" before the American College of Surgeons at its recent New York meeting.

* * *

Dr. Clovis W. Bowen and Dr. Harry J. Bowen, Topeka, announce that Dr. Floyd C. Beelman is now associated with them in practice. Dr. Beelman recently returned from Washington, where he served as chief of the Organization and Operations Branch, Health and Special Weapons Defense Division, Federal Civil Defense Administration. He is now engaged in general practice.

* * *

Dr. John G. Shellito, Wichita, spoke on "The Need for a Tuberculosis Hospital in the Wichita Area" before the Business and Professional Women's Club there on October 14.

* * *

Dr. Byron W. Walters, who practiced in Marquette before going to Cleveland for postgraduate work in ophthalmology, has taken over the practice of Dr. John A. Holmes in Lawrence. He will engage in general practice and devote part time to his specialty.

Dr. Philip Goering, who has been practicing in Kingman since July, closed his office last month to enter military service.

* * *

Dr. Galen M. Tice, chairman of the department of radiology at the University of Kansas School of Medicine, has been appointed to serve as a member of the Teletherapy Evaluation Board at the Oak Ridge Institute of Nuclear Studies. Dr. Tice participated in the formation of the board recently and outlined plans to test new multi-curie radiation sources now available.

* * *

Dr. C. H. Lerrigo, Topeka, for many years executive secretary of the Kansas State Tuberculosis and Health Association, was guest of honor at a luncheon given by the association on October 2.

* * *

Dr. Paul H. Lorhan, head of the department of anesthesiology at the University of Kansas Medical Center, was one of the guest speakers at a meeting of the Colorado Chapter of the American Academy of General Practice last month. His subject was "Anesthesia Problems."

* * *

Dr. David G. Laury, who has been practicing in Baldwin in association with Dr. V. H. Hildyard, recently received orders to report at the Olathe Navy base on November 7 for active duty.

* * *

Dr. John L. Lattimore, Topeka, has been selected to serve as a member of the Committee on Indigent Care of the Council on Medical Service of the American Medical Association.

* * *

A feature story on Dr. Franklin D. Murphy, chancellor of the University of Kansas, was published in the section on "Medicine" in the October 27 issue of *Time Magazine*.

Antibiotics, which have changed the basic structure and character of the pharmaceutical industry in the past 10 years, will continue to be increasingly important, in the opinion of Graydon L. Walker of Parke, Davis and Company.

"A definite trend appears to be developing in the vast amount of research being done in the field of antibiotics," he said. "Not long ago, research effort seemed to be directed toward a search for antibiotics that would be effective on an increasingly wide segment of the bacterial spectrum. Today, there appears to be more and more interest in developing new antibiotics which would be specifically effective against one or a very few organisms. It seems likely that the antibiotic ammunition of the future will fit a rifle, rather than a shotgun."

Case Report From The University of Kansas Medical Center

Medical Thyroid Crisis

Edited by Glen R. Shepherd, M.D., and Mahlon H. Delp, M.D., from recordings of the conference participated in by the departments of medicine, pathology, radiology, and surgery and the junior and senior classes of medical students.

Case Presentation

S. H., a 69-year-old white woman, was admitted to the University of Kansas Medical Center on June 7, 1950, for toxic goiter. She died two days later.

This patient first became ill in June, 1948, with swelling of the feet and ankles and pain in the joints. She was treated by a local physician without improvement. A diagnosis of hyperthyroidism was made later in a neighboring city. Improvement occurred with some unknown treatment. The patient lost her edema and began to feel better.

Almost two years later, in May, 1950, the patient suffered an apparent cerebrovascular accident while working in the garden. She had inability to speak, walk or arise from the ground where she had fallen. She was put to bed. One hour later she began to have a return of her speech and within several hours she was able to move the extremities on the right. Two days later, she was taken to a hospital, given iodine and was then sent here.

Past history included hypertensive cardiovascular disease, duration unknown. The patient had had dyspnea on exertion, orthopnea, and swelling of the feet and ankles for two years. Apparently hypertension had been present for 12 years. The patient had had pain and burning on urination for an unknown length of time.

On physical examination, the blood pressure was 100/80, pulse 120 and irregular. She was a small woman, flushed in appearance, having a red face and skin amounting almost to erythema. The skin was dry, as were the tongue and mucous membranes. Respiration was rapid. She was delirious with a general trembling. Eye examination revealed no abnormalities. Ear, nose and throat examination showed only the dry tongue noted above. There was no lymphadenopathy. Examination of the neck showed a palpable thyroid in the suprasternal notch. Dullness extended below the upper sternum. Lung examination revealed no unusual physical findings. The heart was fibrillating rapidly, but no murmurs or thrills were observed. Pulse deficit was present. The abdomen was distended, with loud borborygmi. No organs or masses were palpated. There was excoriation of the vagina and buttocks due to diarrhea for the past week. Neurological examination was completely unsatisfactory because of the excitable state of the patient.

Laboratory examination: urinalysis showed an acid reaction, specific gravity 1.012, trace albumin, negative sugar, pus count 10,500 per cu. mm., hematest 2 plus, some bacteria and amorphous matter. Complete blood count showed 5,380,000 red blood cells, 87 per cent hemoglobin or 13.5 grams, 6,400 white blood cells, 69 polys (all filamented), 22 lymphs, 1 basophile, and 8 monocytes. Wassermann and Kahn were negative. Blood chemistry showed the following: NPN 47, creatinine 1.5, sugar 110, sodium chloride 80 milliequivalents, carbon dioxide 46.8 vol. per cent (bicarbonate ion 21.06 meq.), calcium 5 meq., phosphorus 2.2 meq., cholesterol 204 mg., cholesterol esters 95 mg. or 47 per cent. Acid phosphates 2.2 King-Armstrong units, alkaline phosphatase 10.8 u., serum sodium 146 meq., and serum potassium 5.5 meq. Urine culture showed a heavy growth of E coli. Sedimentation rate showed a drop of 11 mm. in one hour.

Upon admission the temperature was 101° F., rectally and remained between this and 103.6° F. She was given both I.V. and subcutaneous fluids. On June 8, she was given radioactive iodine by mouth for uptake estimation. At this time she was also started on penicillin. It became apparent on June 8 that she could not be maintained for two weeks without the use of iodine and propylthiouracil by mouth. Therefore these substances were started. She was given 10,000 cc. fluid on June 9. However, despite the above efforts, the patient expired on June 9 after a rapid clinical deterioration characterized by increasing pulse and respiratory rates, rise in temperature, and increase in delirium.

Question: Did the patient have areas of massive edema?

Dr. Robert Jenson (medicine resident*): She did at the time she died. She was markedly edematous in all extremities.

Question: In the lungs?

Dr. Delp (chairman): She had pulmonary edema, I suspect, for at least three hours before death.

Question: Was a BMR done at any time? Do you have any knowledge of weight loss?

Dr. Jenson: No, a BMR was not done. Although she had weight loss, the amount is not known.

*Dr. Jenson now is in Boston wtih a fellowship in metabolic diseases at the Massachusetts Memorial Hospital.

Question: Was she taking any iodine or thiourea before she came in?

Dr. Jenson: She was taking iodine, but probably not any thiourea.

Question: Do you know if she got any the day before or the day she came in?

Dr. Jenson: No, we don't know that.

Dr. Delp: We are reasonably sure that she had Lugol's solution the day before she came in. However, we know nothing about what the actual dose was. Probably it was only 10 drops the entire day. We have no reason to believe that she had any thiouracil or propylthiouracil at any time.

In the history there was vague allusion to the fact that when she had been seen previously the year before she had been given some sort of tablets. We are reasonably sure that one of those tablets was digitalis. We think it was probably whole leaf digitalis, but we know not what the other tablets were. Perhaps the patient had propylthiouracil for a period of time during her first hospitalization.

We don't think she had any thiouracil or propylthiouracil at the second hospitalization immediately prior to coming here.

Question: Is there any record of urine output?

Dr. Jenson: No. She was incontinent.

Question: I would like to know a little more about the stroke she had.

Dr. Jenson: The patient had a transitory right hemiplegia with an aphasia.

Question: Does anybody know how high her blood pressure had been previously?

Dr. Jenson: It had been well over 200 mm. of mercury systolic. The blood pressure chart shows that when she arrived her blood pressure was 180/70. It rose to 190/80. Just before she died it was 120/50.

Question: Was papilledema ever observed at any time during her hospital course?

Dr. Jenson: No. I looked at her eye grounds for changes. There were none at all.

Question: Was the flushed appearance she had due to a rash? Was it a rash or just a pigmenting of the skin?

Dr. Jenson: It was flushing of peripheral vasodilatation, not a rash.

Question: Did she receive any digitalis at the end?

Dr. Jenson: Yes, 0.2 mg. of purodigin daily.

Dr. Delp: We have the electrocardiographic tracings. You can see that the patient had a tachycardia. The patient had a prolonged PR interval. You notice the cupping of the ST segments which we think cannot be accounted for on the basis of the tachycardia alone, although it is a fair grade of tachycardia. We think that is undoubtedly digitalis effect. The unipolar leads add very little.

We would suspect a large left ventricle because of the height of the QRS complex, the width of the QRS complex, and the delay in the intrinsicoid deflection. We certainly would interpret that cradling or cupping of the ST segments as being indicative of digitalis effect, and perhaps digitalis intoxication. That is why the patient was placed on only a maintenance dose of digitalis. With that degree of tachycardia, you would be seriously tempted to redigitalize the patient unless you had the electrocardiographic evidence of intoxication.

Differential Diagnosis—Clinical Discussion

Mr. Richard Walters (senior medical student*): Apparently the problem here isn't one of diagnosis because two of them are given to us. However, I think I had better confine my remarks to what we have here and not what we don't have.

We know definitely that this woman had had a hypertension for some time, between 10 and 12 years.

There is great value in trying to make one diagnosis fit all of the symptoms of the patient. Since we have one condition which can explain her hypertension and her other symptoms, I give my vote to thyrotoxic heart disease as a cause of her hypertension. The most likely cause of the May, 1950, episode would be cerebral vascular accident. Because she might have been fibrillating at that time, which is common in thyrotoxic heart disease, possibly an embolus obstructed cerebral circulation. However, an embolus would produce a longer-lasting damage than she had. Her sudden recovery suggests the presence of a transient thrombosis, a spasm of the cerebral vessels or even hypertensive encephalopathy.

*Dr. Walters received his M.D. in 1950. After completing his internship in Wesley Hospital, Wichita, he entered private practice in Wichita, Kansas.

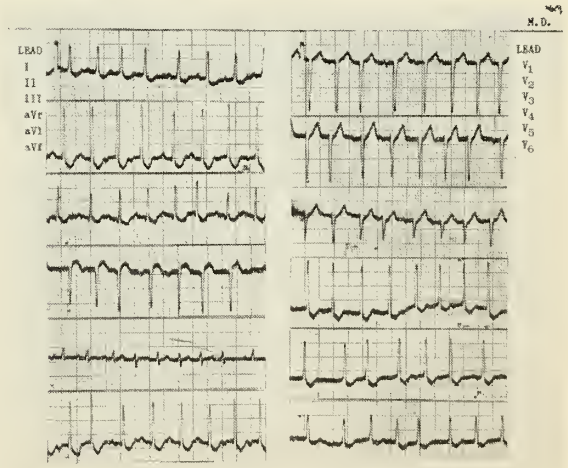


Figure 1. EKG, showing tachycardia, prolonged PR intervals, cupping of the ST segments (both digitalis effects), and heightened and widened QRS complexes.

Now as to the cause of death in this patient. The most common cause of death, I think, in thyrotoxic and hypertensive cardiovascular disease is heart failure itself. We might expect to find a little hypertrophy and perhaps some dilatation of this heart.

Dr. Delp: Do you think she really died of congestive failure?

Mr. Walters: No, I don't. I think the cause of her death was delirium from a combination of acidosis, anoxemia, and edema of the brain.

Dr. Max Berry (Medicine): This was not an uncommon clinical problem in the past. Maybe in the future we won't see many of them. I think with the methods we have available for handling thyrotoxicosis at present that probably we can prevent a large majority of patients going into this situation.

This patient was pretty well presented by our student. I have little to add except the name of the condition the patient had when she came here. It was certainly a thyrotoxic crisis. She had a hyperthyroid storm, or whatever you want to call it.

Now to trace our diagnosis. She had a history of hyperthyroidism, recognized a couple of years ago. Perhaps she had hypertension, and maybe she had hypertensive heart disease. With a systolic blood pressure of 200 mm. of mercury, we can assume that she probably did have some hypertension. But I don't believe that the hypertensive heart disease was bothering her very much or entered too much into the picture that she had here. I won't say it is probable, but it is possible that she had no hypertension per se except that associated with her hyperthyroidism when seen earlier.

She apparently went into a crisis. Why she did that I don't know. Whether she was taking iodine and propylthiouracil, or whether she was taking one or the other, or whether she couldn't take propylthiouracil, or for some reason something else was bothering her and she didn't receive the medicine that was necessary to control her, I don't know. Anyway, she was in thyroid crisis before arrival here.

Now for the events which transpired after she got here. I don't believe it is possible to say what else could be done for her. Her clinical picture was fair. Her pulse rate was 120. She had a marked tachycardia. I assume that that probably occurred after the electrocardiogram was made, although that electrocardiogram showed a rate that was quite fast. I couldn't count it, but it was well up to 150. That electrocardiogram also showed enough evidence of digitalis intoxication that we knew we should withhold digitalizing doses of that medicine from this patient. Digitalizing doses of digitoxin or of digitalis in any form probably wouldn't have done any good in this case anyway. These patients don't respond to foxglove as do ordinary patients with heart disease.

Regarding the routine treatment of the thyroid storm or thyrotoxic crisis, oxygen, fluids, iodine, sedatives, digitalis, and plenty of fluids are indicated. About two-thirds of the patients die who are as bad as she apparently was. That is probably about the mortality no matter what you do for them.

Theoretically, the management should have consisted of keeping her as quiet as possible, supporting her as much as possible, preparing her with iodine, and preparing her with propylthiouracil in large enough doses that her thyroid function would diminish. Prior to the availability of radioiodine, surgery was the treatment of choice after the patient quieted down. With enough iodine, enough propylthiouracil, and other management as mentioned, if it could have been given soon enough, this patient might have been quieted down. This could be termed a medical thyroid crisis. Usually thyroid crisis appears on the first to fourth days following surgery, when a large amount of thyroid secretion occurs. The patient appears as a greatly exaggerated hyperthyroid patient.

I don't believe that we can assume that a miniature dose of radioactive iodine would have precipitated any sudden change in this patient's condition. Was there any such change?

Dr. Jenson: She continued to get worse.

Dr. Berry: But she didn't suddenly get worse, did she?

Dr. Jenson: Well, I believe she did.

Dr. Berry: An embolus thrown from the auricle on the left side as a result of the transient attack of auricular fibrillation probably accounts for the May, 1950, episode. She recovered from that quickly, which is almost always the clinical course of an embolus rather than of any other condition. She had a local cystitis and probably not a pyelonephritis. Her heart enlarged as a result of its overwork, and she may have had arteriosclerotic heart disease. If she did have it, I don't think it had anything to do with her death. In other words, I don't think she had a coronary occlusion. She probably had a little pneumonia and edema of the brain and maybe some other findings that would be the final process in a patient who is dying of hypermetabolism from a thyroid storm.

Pathology Report

Dr. Robert Owens (pathology resident*): The findings were primarily in the thyroid gland. It was enlarged, weighing 120 grams. Two-thirds of it was substernal in location. The left lobe was three to

*Dr. Owens is now in his third and last year of urology residency, K.U.M.C.

four times larger than the right. However, they were both enlarged. There were numerous areas of softening. The cut surface was nodular.

The heart weighed 275 grams, which is not a large heart at all. She was a small woman. You might say there was some enlargement there because there was more enlargement of the right than of the left ventricle. The right ventricle was flabby and dilated, and there was probably also some left ventricular dilatation.

There was quite a bit of fat padding, congestion and wetness throughout the lung cells. There was no free pleural or peritoneal fluid.

Also there was a 1½ x 1 cm. nodule found hanging from the liver. Grossly, it resembled liver.

On opening the head, we noted an increased amount of cerebral edema as well as meningeal edema.

The gross diagnosis is a nodular hyperplasia of a substernal thyroid, pulmonary congestion and edema, meningeal and cerebral edema, and acute cardiac dilatation.

Dr. T. R. Hamilton (Pathology*): Microscopic examination of the heart muscle showed no evidence of myocarditis. The muscle cells were enlarged and in these hypertrophied forms enlarged nuclei were observed which were hyperchromatic We saw no evidence of coronary disease.

Section of the lung showed a purulent bronchitis with early bronchopneumonia.

Microscopic examination of the thyroid did not show the proliferation of the gland that you see in the usual picture of exophthalmic goiter. There were degenerative changes. This was the so-called adenomatous or nodular goiter but not true adenomata. There were micro-follicles along with the macro-follicles in the nodules. This was not the true fetal adenoma or true adenoma at all, nor was it the picture of true hyperplasia.

Changes in the tubular cells of the kidney were multinuclear types of degeneration and regeneration. They were probably on an anoxic basis similar to that in the liver. This was a metabolic disease, thyroid crisis, in which the patient died of an early terminal bronchopneumonia.

Cut sections of the brain showed evidence of a degeneration that was about the proper duration for this patient's cerebrovascular accident. We didn't find evidence of actual closure of the vessel. I believe that this may have been associated with the generalized anoxia to the tissues which was, of course, accentuated as the patient went into a failure or fibrillation some few months ago.

Dr. Delp: Dr. Helwig, we would like to hear any comments you care to make about this case.

Dr. F. C. Helwig (pathology): In the first place, I can't agree with Dr. Berry about the frequency of thyroid crisis. It is a pretty rare disease since Plummer gave us Lugol's solution.

There are obviously two classical types of so-called thyroid crisis, one which we see in frank Basedow's disease and the other in the degenerating nodular goiters without eye signs, as in the present case. Usually those with either primary or secondary Basedow's disease will show rather marked exophthalmos. Examination of the gland in those individuals will show an extraordinary degree of papillary hyperplasia. However, with the nodular toxic goiter, which I feel this represents, there is a burned out gland.

I recall a patient during my internship with Hertzler who came in and died in a matter of two or three days, just as this patient did, despite all the things which we did in those days. That patient had scarcely any glandular tissue left at autopsy.

Particularly since the advent of Lugol's solution, thiouracil and propylthiouracil, we pathologists are really handicapped in telling very much about the character of the gland histologically in regard to what the patient had. These drugs have been a great boon for the patient, but the alterations in thyroid structure produced by them makes correlation of histopathological changes and clinical manifestations difficult.

Now I think it has been held by some investigators that over half of the iodine in the body not incorporated within the gland itself is distributed to the muscles. These patients with burned out goiter of this character have undoubtedly suffered from a

*Dr. Hamilton is now professor and chairman of the Department of Medical Microbiology, K.U.M.C.

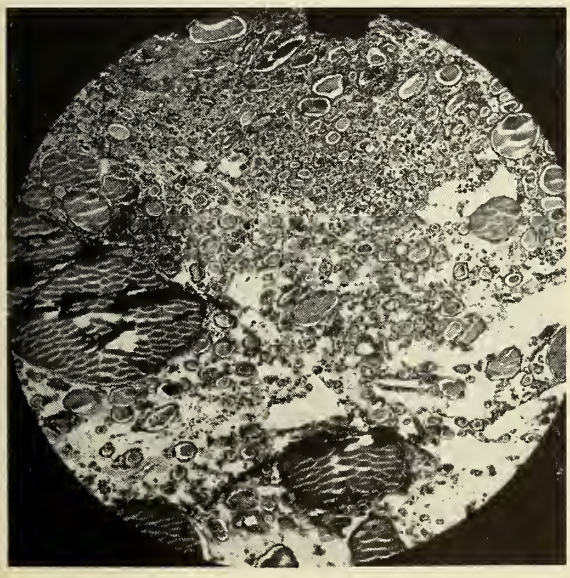


Figure 2. Thyroid (X70), illustrating macro- and micro-follicles in adenomatous nodule.

certain degree of iodopenia, and very correctly this patient was given what would appear to be massive doses.

A gram or even more of sodium iodide intravenously is sometimes necessary to bring patients out of early crisis. I have seen as much as two grams of intravenous sodium iodide given in a 24-hour period with often dramatic recovery from a so-called crisis on the part of the patient.

In examining the section from this brain, I feel that the lesion was anoxic in origin or due to a miniature embolus that was let off from the left auricle. We didn't pick up the point of occlusion in our section. The area is almost confined to the low power magnification of the scope, you might say. That is how small the lesion was, and that is probably the reason, as Stanley Cobb has shown, that this trigger mechanism of miniature focus may set off a striking cerebral manifestation which will clear in a matter of hours or even less. We find years or more later, perhaps, a tiny microscopic cyst in that focus.

Clinical Discussion

Dr. Delp: Dr. Dunham, did you think that the tracer dose might have furthered the patient's crisis?

Dr. H. H. Dunham (radiology*): No, I don't think so. This patient received 0.6 millicurie. About the smallest known therapeutic dose that I ever had anything to do with was 0.7 of a millicurie. We don't know anything about this patient's uptake, whether she took up three per cent or 90 per cent of what was given. So without that we have nothing on which to base any judgment.

But suppose she had taken up 50 per cent of it, which would have been 0.3 millicurie. That is not more than 0.1 of any kind of therapeutic dose given and probably around a 15th or a 20th of a great many of the therapeutic doses that are given. It isn't impossible that it could, but it certainly sounds a little far-fetched to me.

Dr. Delp: Dr. Harsha, have you seen any patients with tracer doses that seem to have any excitability afterward?

Dr. William Harsha (surgery resident*): No, sir. The last two years I have had contact with 116 patients with tracer doses, not a large series. None of those had any excitability afterward that we could tell. On this particular patient, we did get some studies before she expired. She retained 0.3 of one per cent of the tracer iodine.

There are two or three patients reported who complained of increased excitability. There are two cases reported that I have heard of. One was treated with 1,020 equivalent roentgens to the thyroid gland. Two days later the patient developed increased excitability. Another one who got 6,500 r. to her gland with radioiodine went into a frank crisis and responded to intravenous iodine.

Dr. Delp: Dr. Friesen, is this case of any interest to you? We would like to think that the surgeons are the only ones who treat thyroid crisis.

Dr. Stanley Friesen (surgery): Thyroid crisis is seen much less frequently than in the past. This is primarily due to the fact that the internist and endocrinologists have more completely prepared these cases for surgery.

Dr. Delp: I think unquestionably, as Dr. Berry stated, that this patient had been in crisis for several days before being sent here. I would, however, not have you minimize the possibility that the trip may have precipitated or aggravated the storm, for such is possible.

Innumerable individuals, including myself, examined this patient several times within the hour or two after she got into the hospital at 3:00 in the afternoon. That in itself will precipitate a storm in some people. Massaging the thyroid gland in an individual extremely toxic might do the same thing. I think we made an error in management in not immediately starting her on intravenous iodine. I question just how much good it might have done. It had been planned that she receive radioiodine, and it was necessary for us to find out something about her probable uptake before it was given. Consequently we procrastinated almost 18 hours in treating the patient. When we did attempt to treat her, we couldn't get propylthiouracil into the patient. We even had extreme difficulty in giving the iodine intravenously.

There is good evidence to show that whenever radioiodine is given to a large series of patients, quite a few develop storms after the radioiodine just as they do following surgery. However, I am quite willing to admit that this infinitesimal tracer dose didn't have any effect although, at the moment, Dr. Jenson and I thought this patient was more excited. We think we have seen one other following a tracer dose who was considerably more excited the following day, about 12 hours after the administration of the dosage.

Summary

A 69-year-old female with a two year old history of recurrent hyperthyroidism, hypertension, and one cerebrovascular accident was electively chosen for treatment with radioiodine. Before a therapeutic dose of this agent could be given, a fullblown thyroid storm developed and the patient expired.

*Dr. Dunham is now in private radiology practice in Emporia, Kansas.

*Dr. Harsha is now in the private practice of surgery, Lawrence, Kansas.

The clinical picture of thyroid crisis is seldom seen now because of greater ease in preparation of patients for surgery with effective anti-thyroid drugs. Medical ablation of the thyroid by radioiodine entails a survey of the suitability of the patient and then withholding of iodine and other anti-thyroid substances in order to determine the probable uptake as well as to enhance the therapeutic dose pickup. Couple this necessary withholding of treatment with other delays and emotional trauma to the patient, and there is the proper setting for a "medical thyroid crisis" rather than a post-surgical thyroid storm.

A thyroid crisis may follow administration of radioactive iodine in therapeutic doses. Whether the small tracer dose might precipitate such in the precariously toxic patient is questionable. The syndrome itself remains so poorly understood as to warrant no further conjectural assertions.

COUNTY SOCIETIES

The September meeting of the Cowley County Society was held in Winfield. Dr. J. Thomas Grayston, of the U. S. Public Health Service, University of Kansas Medical Center, spoke on "Histoplasmosis —Diagnosis and Treatment." Dr. Robert E. Pfuetze, Topeka, was a guest.

* * *

Dr. Robert D. Dripps, professor of anesthesiology at the University of Pennsylvania, was guest speaker at a meeting of the Sedgwick County Society held at the Allis Hotel, Wichita, October 14.

* * *

The Mid-West Kansas Medical Society met October 21 at the Town and Country Club in Lyons. Forty-two doctors from Rice, Reno, Stafford, Ellsworth, Barton, Rush and Pawnee Counties and one senior medical student attended. Dr. David Wall of Wichita spoke on "Problems of the Schizophrenic as Related to the General Practitioner." The next meeting of the group will be held in December with members of the Stafford County Society as hosts.

* * *

A meeting of the Shawnee County Society was held October 6 in Topeka with Dr. Joe Parker, Oklahoma City, as speaker. His subject was "Intestinal Obstructions." During the business session it was announced that the society will occupy offices in its recently purchased building at 315 West Fourth Street after November 1. Two physicians, Dr. Henry E. Altenberg and Dr. Arthur J. Revell, were elected to membership. The meeting also included a memorial to the late Dr. James D. Bowen.

* * *

The Wilson County Society held a dinner meeting in Fredonia on October 8. Speaker of the meeting was Dr. Dale W. Peters, a psychiatrist from Wichita.

* * *

Dr. and Mrs. L. G. Graves, St. John, entertained the Stafford County Medical Society and Auxiliary at a dinner meeting at their home on October 13.

* * *

A dinner meeting of the Cowley County Society was held at the Arkansas City Country Club on October 16. The members voted unanimously to close their offices on November 4, election day, after it was reported that all doctors in the state of Oklahoma will follow that practice. Guest speaker for the evening was Dr. Arthur H. Bacon of Wichita, who discussed "Spontaneous Subarachnoid Hemorrhage." Mr. James First of Topeka outlined an insurance plan open to members of the Kansas Medical Society.

* * *

A picture of all members of the Atchison County Society was published in the Atchison Globe on October 19. Twelve physicians make up the membership in the society.

Guide for Planning Offices

A guide to assist physicians in planning offices was recently published by the American Surgical Trade Association. The brochure was prepared under the direction of the Division of Hospital Facilities of the U. S. Public Health Service and incorporates suggestions from the American Medical Association, architects, and manufacturers and distributors of surgical and medical equipment.

Layouts for the various specialties are given, along with suggestions for maximum efficiency and comfort and arrangement of furniture and equipment.

Complimentary copies may be secured from the Association, 176 West Adams Street, Chicago 2, Illinois.

A majority of the active, private physicians in the United States belong to the Republican Party, according to a recent report issued by *Medical Economics*. Republican doctors, they say, outnumber Democratic physicians by almost 2.5 to one. Information on which the report is issued was acquired in a survey of medical practice based on a questionnaire sent to 134,000 doctors.

About 54 per cent of the doctors replying said they were Republicans, 22 per cent reported themselves as Democrats; 24 per cent classified themselves as independents, and less than one per cent specified affiliation with minor parties.

Senior Thesis from the University of Kansas Medical School*

Patent Ductus Arteriosus: Its Diagnosis and Management

Eugene V. Conklin, M.D.**
Kansas City, Missouri

Introduction

In 1942, Keyes and Shapiro[1] estimated that there were, roughly, 20,000 persons in the United States with patent ductus arteriosus. In the same year an analysis of 60 cases of patent ductus arteriosus in adults, with regard to the life expectancy in the United States, showed a substantial decrease in life expectancy in people with patent ductus arteriosus who were alive at 17 years. As early as 1939, one year after the first successful ligation of a patent ductus by Gross and Hibbard, Bullock[2] was presenting evidence of marked relief of symptoms due to patent ductus in children after surgical ligation. This, coupled with the decreasing morbidity and mortality accompanying the recent advances in anesthesiology and thoracic surgery, makes the diagnosis of patent ductus and its differentiation from non-surgical anomalies of the heart, or other anomalies for which the patent ductus is compensatory, of increasing importance to the clinician.

This paper represents a perusal of the literature in an effort at developing some fixed pattern to be looked for in diagnosing and managing patent ductus arteriosus.

Thirty-five cases have been studied regarding EKG findings in patent ductus. These cases represent cases done at the University of Kansas Medical Center since 1947. The list, however, is not complete and does not include all the cases done. All the cases studied have had surgical intervention and, where possible, EKG studies before and after ligation.

The Effect of the Patent Ductus on Circulatory Dynamics

Normal obliteration of the ductus begins after functional closing, which takes place at a very early age and is usually complete by two months, but may be delayed six months or a year. It should be emphasized that patency in the first months of life should not be considered as an abnormality but rather as a normal variant. At birth the lungs expand and blood begins to flow through the pulmonary circuit with a resultant decrease in pressure in the pulmonary artery. During fetal life the flow of blood has been from pulmonary artery to aorta, but with the decrease in pulmonary artery pressure there is a relative increase in systemic pressure and a reversal of flow through the ductus. In the normal heart these pressures subsequently become equal and the ductus is functionally closed. This is followed by actual obliteration of the ductus.

When the ductus fails to close as the individual grows, the systemic pressure rises and the flow of blood resumes from aorta to pulmonary artery.

The blood shunted from aorta to pulmonary artery increases the work load on the left side of the heart.[27] The blood which is shunted through the pulmonary circuit is returned to the left side of the heart and consequently raises the pressure there. Furthermore, the blood shunted into the pulmonary circulation raises the pressure against which the right side of the heart must work. The greater the volume of the shunt and the greater the rise in the pulmonary pressure, the greater is the strain on the right ventricle.[3, 27]

A thorough understanding of these dynamics make the clinical picture of uncomplicated patent ductus fairly clear cut. Such circulatory dynamics are intimately related to the development of signs and symptoms.

Clinical Findings

Patent ductus arteriosus occurs two to three times more commonly in females than in males. In the 35 cases studied at the University of Kansas Medical Center, 87 per cent were female. This is in agreement with the literature. There is no explanation for this female predominance.

History: If the duct is large there may be considerable incapacity. There is not complete agreement in the literature on this. Some observers say that the majority of their adult cases with a positive diagnosis of uncomplicated patent ductus lead normal uninhibited lives. Bullock[2] makes the observation that it is not the pediatrician who is bothered by patent ductus arteriosus, but the cardiologist who cares for the patient in later life. (Reference to the complications of the patent ductus will be made later.) There is rarely a history of cyanosis, but as Maude Abbott[4] has pointed out there are cases wherein pulmonary obstruction, as in crying, coughing, etc., raises the pressure in the pulmonary circulation, causing a temporary reversal of flow through the patent ductus with a transient cyanosis. Nowhere did we find evidence that these people were proved to have frequent pulmonary infections. Taussig[3] states that if the ductus is large enough, dyspnea and palpitation may be a sign. Of Bullock's[2] 11 patients, eight had marked exertional dyspnea and palpitation.

*This is one of 11 senior theses selected for publication by the Editorial Board from a group of 15 judged the best by the faculty of the University of Kansas School of Medicine.

**Thesis written while Dr. Conklin was a senior student at the University of Kansas Medical Center. He is now interning at St. Mary's Hospital, Kansas City, Missouri.

Levine[5] reports a common finding is precordial pain. This pain is not truly anginal in nature. It was generally localized in the left breast or apical region and was either stabbing in nature or a dull ache.

Physical Examination: Usually the patient is of the tall, slender, pale type, but Abbott[4] points out that this is not always true; the individual may be short, stocky, and ruddy complexioned. Shapiro[19] reported 62 patients, of whom 23 had stunted growth. Clubbing of the fingers probably never occurs as a result of uncomplicated patent ductus arteriosus. Cyanosis may be seen but as an exception rather than due to a transitory reversal of flow through the ductus. The pulse pressure is usually high and may be increased with exercise, which usually produces a further lowering of an already low diastolic pressure. (This exercise test has been perfected by Bohn and is described in the discussion of reference 19.) Occasionally, the pulse pressure is high enough to produce the typical Corrigan pulse and a conspicuous capillary pulse in the nail beds. Bullock et al[2] reported five cases with pistol shot sound over the femoral artery which was increased with exercise.

Perhaps the most characteristic physical finding is the so-called "machinery murmur."

The murmur, as described by Taussig,[3] is of a "harsh, rasping quality and is continuous throughout systole and diastole. Usually the murmur has a systolic accentuation. It is said to be best heard to the left of the cardiac border beneath the clavicle in the second interspace. The systolic element of the murmur is ordinarily transmitted to the vessels of the neck and is usually clearly audible high in the interscapular region posteriorly. Almost invariably the systolic element is audible over the entire precordium. Indeed, the systolic murmur may be loudest in the third left interspace close to the sternum and be transmitted to the axilla. Moreover the diastolic element may be heard along the left sternal border. The murmur is usually louder in the recumbent than in the erect position."

She explains the development of the murmur as depending on the difference between the two pressures. In the infant the systemic pressure is low and the difference between the pressures is low. Until the systemic pressure rises, with growth, to the point at which the systemic diastolic pressure is higher than the pulmonary diastolic pressure, there is only a systolic element to the murmur. When blood flows through the patent ductus during both systole and diastole, one hears the typical continuous murmur.

It is important that the physician recognize that, at certain times and under certain dynamic situations, an anatomically patent ductus may be functionally closed and result in no murmur at all. This is particularly true in infants and in persons with pulmonary disease resulting in elevated pulmonary pressure or in cardiac failure.

That the typical continuous murmur may not be present in all cases has been pointed out by Burchell.[6] Meyers et al[7] have presented two cases of surgically proved patent ductus with an absence of the diastolic component of the murmur. Both these cases were shown by cardiac catheterization to have markedly elevated pulmonary diastolic pressure.

Levine[5] in studying 37 cases of confirmed patent ductus used a classification of the murmur from one to six. In 25 of these cases the systolic murmur was of an average intensity of four. In 21 of the cases the diastolic component was average grade 3.1. In only one case was the diastolic murmur so faint as to be listed as grade 1. He reported the murmur generally loudest at the pulmonary area and when very loud was widely distributed and heard through the back of the chest and at times down the left arm. He points out that one must not rely too heavily upon the murmur heard in the posterior chest as a sign of coarctation. He reports an apical systolic murmur of about grade 2 in all cases. He also mentions four cases with a mid diastolic murmur at the apex, unlike the diastolic murmur at the pulmonic area.

Ravin and Darley[8] report that in nine of 21 cases of patent ductus arteriosus an apical diastolic murmur similar to that of mitral stenosis was present. Five of these nine patients were operated on. One was shown to have a rheumatic mitral stenosis, one died and a normal value was found. In three the apical diastolic murmur disappeared after ligation of the patent ductus. They felt that this murmur, added to other symptoms of cardiac embarrassment, was a sign the patient was adjusting poorly. Three factors in production of the murmur were suggested: enlargement of the left ventricle cavity; increased speed of blood flow through the mitral valve; and increased tendency in children for the flow of blood into the ventricle during diastole to produce sound. Gross[25] states that the typical murmur occurs in 97-98 per cent of the patent ductus cases and the diagnosis should probably not be made in its absence.

Schnitker[11] points out that with elevation of pulmonary pressure the second pulmonary sound will be accentuated. The accentuation of this second pulmonary sound has been reported to be absent following surgical ligation and/or division of the patent ductus.

In regard to differential diagnosis of the patent ductus, the murmur plays an important role. Taussig[3] has listed and differentiated the most important conditions which may produce a similar murmur.

The venous hum has a diastolic accentuation, is seldom heard more prominently to the left of the sternum, is frequently heard better in the supraclavicular region, and has a characteristic change with changing of position of the head and neck.

In rare instances the murmur of severe anemia may have a diastolic component and may need to be differentiated from patent ductus. It has been hypothesized that glandular pressure producing pressure on the pulmonary artery might produce a murmur similar to patent ductus, but this seems unlikely.

Rheumatic heart disease with both mitral and aortic insufficiency is occasionally confused with patent ductus. In rheumatic fever the systolic murmur is always maximal at the apex and is transmitted to the axilla. This is in contrast to the systolic murmur of patent ductus.

The rupture of the sinus of Valsalva into the right ventricle may be confused with patent ductus. However, this murmur is reported to be lower down and more superficial than that of patent ductus. Taussig believes the systolic component is not as intense as in a patent ductus.

The rare case of malformation of the aortic or pulmonary valves with resultant insufficiency may be confused with patent ductus, but in these the murmur would be expected to be heard from infancy on in all cases.

Gross[25] reports 10 cases in which a high interventricular septal defect left the medial cusp of the aortic valve incompletely supported, allowing occasional aortic regurgitation with a to-and-fro murmur requiring distinction from patent ductus.

Postoperatively Levine[5] reports that a slight pulmonic systolic murmur, grade 1-2, may persist for a considerable time after successful division of the ductus. This may disappear within one or two weeks or may persist after 15 months. He suggests that this may be due to a continued dilatation of the pulmonary artery and may have the same debatable significance ascribed to other inconsequential or functional basal murmurs. The persistence of a basal systolic and diastolic murmur is interpreted by Levine as due to one of several reasons: the presence of bacterial aortic endocarditis or an additional anatomic lesion such as coarctation of the aorta or some other congenital lesion. It is interesting to note that in the 37 cases studied by Levine, only those with subacute bacterial endocarditis of the aortic valve had a diastolic murmur after surgery.

In 21 of Levine's 37 cases, a definite palpable thrill was felt.[5] The thrill is ordinarily felt high in the second left interspace beneath the clavicle and is more pronounced in the recumbent position. In cases with a very loud murmur the thrill may be palpable over most of the precordium and above the clavicle. The thrill is reported to be absent in all cases after surgery.[2]

Roentgenological Findings

There are no absolutely unequivocal findings in all cases of patent ductus. The heart may appear of normal contour and size, but is usually said to be enlarged slightly. Twenty-two of Shapiro's 62 cases had no enlargement radiographically.

The most commonly described malformation is the accentuation of the second curve to the left of the sternum, the so-called "Cap of Zinn."[3] The hilar vessels are frequently slightly enlarged. Pulsations along the contour of the heart are rather vigorous, especially around the pulmonary arch and aortic knob. Evidence of calcification near the caudal aspect of the aortic arch in young persons should be looked upon as confirmatory evidence of a patent ductus.[9] Some authors make no mention of the hilar dance, but patent ductus is usually considered as one of the conditions producing this sign. No direct relationship exists between clinical signs and prominence of the pulmonary conus.[9]

According to Roesler,[9] the roentgenological differential diagnosis must include thyrotoxicosis and stenosis of the pulmonary orifice with post-stenotic dilitation of the artery. Also the interatrial septal defect is, in general, characterized by a much larger heart, absence or smallness of the aortic knob and always discloses very large intropulmonary vessels. Diffuse obliterative endarteritis of the lesser circulation has a similar appearance except that the aortic knob is of normal size. Patent ductus alone, rarely if ever, leads to enormous cardiac enlargement. The presence of a very large trunk and branches occurs only in combination with and complication by aneurysmal formation.

Donovan et al[21] studied 50 cases pre- and postoperatively. His pre-operative data is essentially the same as given above. Post-operatively he noted reduction of ventricular pulsation to normal, the pulmonary artery was no longer enlarged or pulsating, the hilar dance absent, and the left auricle either reduced in size or normal. He noted that contrary to possible expectation, there is seldom a marked decrease in the transverse diameter of the heart on post-operative roentgenograms. He observed, however, that there was evidence that led them to believe that accurate measurement of heart volume would probably show a smaller heart after operation than can relatively be demonstrated by roentgenograms. He states that children seem to "grow up" to the larger heart, and examination one to two years later shows the heart to be normal or near normal size for the larger thoracic cage resulting from growth.

Recently angiocardiography has come into use in

diagnosing patent ductus. Steinberg[20] summarized the angiocardiographic findings in isolated patent ductus as follows: "1. A distinct dilatation of the descending aorta just beyond the isthmus which varies in size and shape from a localized bulge to a uniformly dilated segment. The appearance may be due either to the infundibulum of the patent ductus or perhaps in some cases to a traction aneurysm of the aorta. 2. An elevation of the main and pulmonary arteries, the appearance suggesting that they are drawn toward the isthmus of the aorta. 3. Moderate to marked dilatation of the pulmonary artery usually was found. It was absent in 25 per cent of the cases. 4. Varying degrees of left ventricular dilatation. In 27 cases of patent ductus (12 of which were confirmed at operation), 26 showed the aortic abnormality described above."

Dotter and Steinberg,[22] in a recent summary of angiocardiographic findings in patent ductus, added to those mentioned above the following persistent opacification of the pulmonary arteries at the time of aortic filling; a defect in the column of contrast substance within and at the time of filling of the left pulmonary artery caused by a jet of non-opacified blood issuing from the ductus. Rarely, opacification of the ductus itself may be seen.

They state that all of the signs mentioned have been absent in proved cases of patent ductus.

Retrograde aortography has been shown to demonstrate anatomy of the patent ductus with clarity, but according to Dotter and Steinberg it is not recommended as a routine procedure.

In 1950, Keeler[10] evaluated the conventional findings in angiocardiography of the patent ductus both before and after ligation and drew the following conclusions: "The sequence of early filling of the left pulmonary artery, followed by emptying and then refilling at a time when the left ventricle and aorta are filled with opaque medium, presents proof of a communication between aorta and left pulmonary artery which is almost certainly due to a patent ductus. This sign disappeared after ligation, thus proving its relation to the patency of the ductus in this instance. This sequence can only be shown if the bolus technique is used, i.e. a small quantity, 20 milliliters of diodane, rapidly injected so that the right side of the heart is emptied before the left is filled.

"The saucer-shaped dilatation of the aorta at the site of the patent ductus is very suggestive, but evidently does not supply diagnostic proof of patency of the ductus, since it was larger and more clearly demonstrated after the ligation. Such enlargement has been visualized in 75 per cent of the cases with patent ductus."[10]

Angiocardiography is ordinarily not done routinely in diagnosis of patent ductus, but in difficult cases it may be of great value in establishing a correct pre-operative diagnosis.

The Electrocardiogram

It is generally agreed by most observers that there are no changes in the EKG typical of the patent ductus. Indeed many authors report the EKG in patent ductus as being normal in the majority of patients.[3, 5, 11, 12]

A review of the dynamics of the patent ductus shows what Keyes and Shapiro[1] reported in their study of patent ductus in adults. Hypertrophy of both ventricles eventually occurs, and therefore a relative balance is usually maintained with neither an undue left or right ventricle preponderance pattern appearing. It has been stated that the absence of well marked right axis deviation can be an important feature in differentiating clinically between patent ductus and pulmonary stenosis. It is important that this identification not be taken too literally because, as has been pointed out by many observers,[12, 14] a case of proved uncompensated patent ductus with some degree of right axis deviation is not rare.

If one studies the precordial patterns of those cases showing standard limb lead evidence of right axis deviation, one will observe that the right axis is probably due to a vertical position of the heart rather than actual right ventricular hypertrophy.

It is important also to remember that normal right axis deviation and precordial evidence of right ventricular hypertrophy are seen in the EKG of the infant.[15, 16]

As has been shown by Levine[17] in cases of long standing with associated pulmonary arteriolar sclerosis, actual right ventricular hypertrophy may be seen.

In this study the EKG's of 38 proved cases of patent ductus operated at the University of Kansas Medical Center were examined with special regard to frontal plane angle of the QRS, angle of the T wave and the QRS-T wave angle. In determining these angles, the triaxial reference system of measurement as described in the Burch and Winsor[18] text was used.

The cases ranged from 19 months to 26 years. Of the 38 cases, 32 were female, only one died, one was seen in the clinic with a diagnosis of patent ductus and her EKG was recorded through and after her pregnancy. It is interesting to note that a reported right heart strain during pregnancy seemed to disappear after delivery and an essentially normal EKG was reported.

Five of the cases, numbers 4, 10, 12, 15, 28, showed angles of the QRS of 90° or over. None were over 93°. In one, number 28, there was

TABLE I

	Patient	*Age*	*Sex*	*Angle of the QRS*	*Angle of the T*	*QRS—T*	*Original Interpretation*
1.	P. M.	19 mo.	F	56	79	—23	Abnormal rotation by P and T waves and V_1. Sinus tachycardia.
2.	S. B.	22 mo.	F	68	58	+10	The lack of left ventricular deviation at 22 months may indicate left ventricular enlargement.
	"	2 yrs.	F	80	31	+49	Diphasic T in Lead III.
3.	S. L.	2 yrs.	F	90	90	0	Unusually large QRS complexes with ventricular enlargement either left or both.
4.	S. B.	3 yrs.	F	30	43	—13	T wave diphasic in CR_1, up in others.
5.	S.	3 yrs.	F	39	62	—23	
6.	C. B.	3 yrs.	F	81	72	+9	
	"	"	"	73	—2	+75	
7.	R. B.	3 yrs.	M	15	27	—12	
8.	J. H.	4 yrs.	F	90	59	+31	
9.	L. S.	4½ yrs.	M	60	52	—8	EKG suggestive of left heart strain.
10.	L. B.	4 yrs.	F	92	61	+31	
11.	A. B.	5 yrs.	F	49	59	—10	
12.	S. A.	5 yrs.	F	80	43	+37	
13.	D. J.	6 yrs.	M	90	65	+25	Large deflection throughout compatible with left or biventricular enlargement.
14.	K. S.	6 yrs.	F	32	76	—44	
15.	N. L.	8 yrs.	F	70	45	+25	
	"	"	"	59	—15	+74	With tachycardia.
16.	J. P.	8 yrs.	F	30	50	—20	Pre-operative.
	"	"	"	24	—10	+34	Day of operation.
	"	"	"	43	48	—5	Post-operative.
17.	P. B.	8 yrs.	F	68	81	—13	High T waves.
18.	L. B.	8 yrs.	F	83	50	+33	
19.	B. C.	8 yrs.	F	57	79	—22	
20.	S. S.	10 yrs.	F	75	56	+19	
21.	C. S.	10 yrs.	F	55	—41	+96	Post-operative evidence of myocardial changes.
	"	"	"	56	—30	+86	Normal pre-operative.
22.	C. H.	11 yrs.	F	93	76	—17	EKG evidence of right heart strain.
23.	K. W.	11 yrs.	F	79	73	+6	
24.	G. M.	13 yrs.	F	43	45	—2	Post-operative hypertensive. Digitalis effect seen in EKG.
25.	A. T.	13 yrs.	F	62	38	+24	
	"	"	"	74	50	+24	

TABLE I (Continued)

	Patient	*Age*	*Sex*	*Angle of the QRS*	*Angle of the T*	*QRS—T*	*Original Interpretation*
26.	G. B.	14 yrs.	F	16	30	—14	
27.	M. G.	14 yrs.	F	60	60	0	
28.	J. P.	15 yrs.	M	70	61	+9	Delay in intrinsicoid deflection in V_6, evidence of left ventricular enlargement.
29.	D. N.	18 yrs.	F	47	14	+33	Post-operative T wave change.
30.	B. C.	18 yrs.	F	75	80	—5	Large complexes.
	"	"	"	66	78	—12	
	"	"	"	69	—47	+116	Interventricular conduction defect. T wave inverted due to pericarditis or myocardial injury.
31.	N.	20 yrs.	F	37	38	—1	10/13/48. Lavorotation with possible right heart strain. Was pregnant.
	"	"	"	55	72	—17	11/8/48. Minimal myocardial change. Right heart strain.
	"	"	"	57	48	+9	12/30/48. Essentially normal EKG.
	"	"	"	61	2	+59	1/17/49.
	"	"	"	55	60	—5	1/20/49. Operated with ligation of patent ductus. Essentially normal EKG.
32.	D. C.	22 yrs.	F	71	84	—13	
33.	D. S.	22 yrs.	M	62	52	+10	
	"	"	"	47	16	+31	Day of operation.
	"	"	"	59	—118	+177	Heart said to be in right chest.
34.	J. R.	22 yrs.	F	—18	71	+89	Question of mitral stenosis. Heart strain and enlargement.
35.	B. D.	23 yrs.	M	48	67	—19	First degree AV block.
	"	"	"	30	85	—55	Large S wave over right chest may mean left ventricular hypertrophy. Large P waves may mean auricular strain.
	"	"	"	32	66	—34	First degree AV block.
36.	M. M.	26 yrs.	F	40	58	—18	Left or biventricular enlargement.
37.	E. N.	27 yrs.	F	42	50	—18	Evidence of right ventricular hypertrophy.
	"	"	"	42	—2	+44	

evidence of right heart strain. In numbers 10 and 12 no comment was made regarding precordial findings. In numbers 4 and 15 there was precordial evidence, as interpreted by the person originally reading the EKG, of left or biventricular hypertrophy. It is important to note that many of the EKG's examined were taken with incomplete chest lead recordings, and the interpretation might have been altered if the full six leads had been available. It is interesting that all five of the cases with angles of the QRS of 90° or over were under 12 years of age. None of the cases showed frontal plane angles of the QRS evidence of left axis deviation. However, two showed precordial evidence of left ventricular hypertrophy and one showed left ventricular strain.

It was only in cases in which there was some other pathology that the angle of the T wave was abnormal or that there was a wide QRS-T angle.

Table I illustrates the cases studied with side notes taken from the original interpretation of the EKG. Our findings were in agreement with Oglesby et al[14] regarding T and RS-T segment changes. That is, there were no characteristic changes. No characteristic arrhythmias were noted.

The conclusion to be drawn from the data gathered in the study is that, as has been shown by other observers, there is no characteristic change in the EKG in the uncomplicated patent ductus. Occasionally a slight right axis deviation may be seen. The presence of a slight right axis deviation calls for investigation with unipolar and precordial leads to determine the electrical position of the heart more accurately. The three cases with signs of right ventricular hypertrophy or strain in proved cases of uncomplicated patent ductus may indicate that one should use caution in using signs of right ventricular hypertrophy and/or strain in differentiating patent ductus from pulmonary stenosis. In most cases, however, the evidence of right hypertrophy would be much greater in pulmonary stenosis, and any case presenting EKG evidence of marked right axis deviation probably is not an isolated patent ductus arteriosus. One may also conclude that while widening of the QRS—T angle may be helpful in interpretation, there is no characteristic widening of this angle in uncomplicated patent ductus.

Cardiac Catheterization

Himmelstein and Cournand have recently made an evaluation of cardiac catheterization in congenital heart disease.

The visualization of the patent ductus arteriosus by actually passing the catheter from the pulmonary artery through the patent ductus into the thoracic aorta is mentioned as one of the most helpful findings and probably the only pathognomonic finding in patent ductus arteriosus. The sampling of blood from the pulmonary artery of a higher oxygen content than the samples taken from the right heart, thus indicating a left to right shunt, is of help but cannot differentiate an aortic septal defect from patent ductus arteriosus. This finding may be confused with a high interventricular septal defect with persistence of laminar flow in the pulmonary artery, or a combination of patent ductus with interventricular septal defect if there is a functional incompetence of the pulmonary valve during diastole with leakage of blood with an increased oxygen content back into the right heart. In case of increased pulmonary pressure, the reversal of flow through the patent ductus (as described earlier in this paper) may be demonstrated in patent ductus by the demonstration of blood of a lowered oxygen saturation in the femoral arteries with a normal O_2 saturation in the brachial arteries. Burchell et al[24] reported decreased O_2 saturation in femoral vessels in a patient with patent ductus arteriosus and associated coarctation of the aorta.

The mortality of cardiac catheterization is reported to be one-tenth of one per cent from figures collected in three laboratories where nearly 3,000 catheterizations had been performed.[23]

The patent ductus is ordinarily diagnosed without the necessity of catheterization, but in difficult cases it may be necessary to use this method to insure a correct pre-operative diagnosis.

Himmelstein and Cournand state that catheterization in congenital heart disease should be reserved for those cases in which the diagnosis, "after careful and expert clinical examination is still in doubt or in which a better documented diagnosis may be of aid in reaching a decision as to treatment."

Indications for Surgery

In 1942 Keyes and Shapiro[1] reported subacute endarteritis as the cause of death in 40 per cent of 57 cases over 17 years of age studied. Twenty-eight per cent died of congestive failure. Rupture of a pulmonary aneurysm, an occasional complication of patent ductus, accounted for 3.3 per cent. They reported the life expectancy, in persons alive at 17 years with a patent ductus, to be about 25 years. This was about one-half the life expectancy in 1942. They suggested that the operation was warranted even in the absence of signs of decreasing adjustments to the defect.

In 1947 Benn[26] in England gave as the indications for surgical treatment of the patent ductus arteriosus: 1. bacterial endocarditis; 2. recovered bacterial endocarditis; 3. cardiac embarrassment, or poor physique. This is essentially a list of the complications of patent ductus arteriosus. He did not believe that the surgical risks were low enough to warrant operation as a prophylactic measure.

Gross[25] believes 25 per cent of the cases he has observed suffered superimposed bacterial endarteritis, usually due to streptococcus viridans. Since the advent of chemotherapy there has been a tendency to treat the endarteritis chemotherapeutically until asymptomatic, without further consideration of surgery. It is important that these people be afforded the surgical treatment to protect their already overworked hearts from further damage or recurrence.

Bacterial endarteritis is rare before four years of age. Gross believes now that the patient should be intensively treated with chemotherapy and antibiotics for a reasonable length of time. If the blood stream cannot be sterilized, then operation should be added during the infective stage. Following sterilization of the blood by drugs (possible in four-fifths of the cases) operation is delayed for several months. Gross states that in the past 12 years, the majority of his patients have been operated on as a prophylactic measure and that none of the operated cases have subsequently developed endarteritis.

Chemotherapy and antibiotics have not altered the effect the patent ductus has on the circulatory dynamics. The existence of a patent ductus into adulthood frequently leads to a state of decompensation. The degree of decompensation depends upon the size of the patency. In those with very slight openings, the only symptoms may be a generalized loss of energy. In those with large openings, there may be frank decompensation. Decompensation is not entirely restricted to adults but is rare in children. Eppenger, Burwell and Gross[27] have shown that in large patent ducti, 45-75 per cent of all the blood pumped by the left ventricle passed through the patent ductus. Adjustment for this is made by an increase in the output of the left ventricle. If this is not sufficient to completely compensate for the leak, there may be a diminution of the blood flow to the periphery.

They have shown that surgical closure improved the peripheral circulation in some patients and reduced the work load in all patients. Reference has already been made to the reduction in the size of the heart following surgery, and to the x-ray findings post-operatively. It is generally concluded that if strain has gone too long, surgery does not afford nearly the post-operative changes seen in cases operated on before the decompensation and strain have created permanent damage.

Bullock[2] and others have shown evidence that growth and development in children are retarded in patients with a patent ductus. Adams[28] studied 61 children with patent ductus, using the Wetzel guide. His conclusions were that pre-operatively more children with patent ductus were of a physique below par and that more had a reduced speed of growth. He showed that post-operatively more children had a gain in physique and an increase in speed of growth than would be expected. In instances in which surgery was performed late in childhood, loss in physique or speed of growth was frequently not regained.

According to Gross,[22] in the matter of mortality rates, if the mortality rate at the institution considering the prophylactic use of the procedure is high, then perhaps it is not warranted.

There are few contraindications for surgery. If the patent ductus is very large and of very long standing, it should not be divided because of the danger of hemorrhage and not be ligated because of the subsequent erosion and hemorrhage. This occurred in three of Gross' 412 cases. Gross does not recommend the procedure in the elderly asymptomatic patient. In a patient with typical patent ductus murmur but with cyanosis, the duct should not be interrupted as it probably is compensating for some other defect. Gross states rheumatic mitral stenosis is no contraindication but rather an indication. He does not believe interventricular septal defect or interauricular septal defect is a contraindication, and adds that closure of the patent ductus may help in that it reduces the work load on the heart. Contraindications are chiefly limited to those conditions in which the patent ductus is compensating for other cardiac anomalies.

The operation of choice now seems to be the complete division of the patent ductus arteriosus. The suture-ligation technique of Blalock[29] may be used. Gross has now performed 396 complete divisions without the loss of a single patient from hemorrhage at the time of operation or subsequently.

In 1947 Shapiro,[31] in an analysis of 643 patients, operated by 46 surgeons, showed that 101 were infected, 525 uninfected; 626 were found at surgery to have patent ductus arteriosus, 17 were misdiagnosed. In ligation of the uninfected patent ductus, the mortality rate was 4.9 per cent with 8.7 per cent resulting in recanalization. One hundred seventy-two patients with uninfected patent ductus were treated by section without a single fatality and no recanalization.

Gross[25] recommends that the procedure be carried out before the patient has reached 20 years of age, the optimum age being three or four years up to 15 or 20 years. He has operated on an 11-month-old baby who was in failure, with success. His oldest was a patient of 51 who was in failure. He explains that not only is the heart benefited by the earlier reduction of the work load, but the procedure is technically much simpler in the younger individual.

Modern methods of anesthesia, using intratracheal intubation, as well as recent advances in thoracic surgery have reduced the mortality substantially.

In a recent communication, Dr. Robert E. Gross[32] reported 550 total operations for patent ductus. All but the first 43 were complete divisions. In the last 300 cases, there were five deaths from all causes. In the last 100 patients there were two fatalities.

Dr. Dwight C. McGoon,[33] reporting from Blalock's service, reported two deaths in the past 100 operations for patent ductus, and these two were patients with additional anatomical anomalies.

Dr. Willis J. Potts[34] reported on 178 cases, the last 150 of whom had complete division without a single mortality.

Conclusion

It is to be concluded from the above that the majority of patent ductus arteriosus cases can be diagnosed by the stethoscope, but in difficult or atypical cases the x-ray, EKG and cardiac catheterization may be of help.

The indications in the light of reduced mortality and the evidence that the patent ductus increases the work load on the heart and decreases the life expectancy, are that surgical treatment probably is indicated as a prophylactic measure. The other indications for operation are definite. Surgery should be performed at an age before which the vessels and patent ductus become so deeply fixed the operative technique is made more difficult, or before irreversible damage is done to the heart.

Summary

1. A consideration of the problem of the patent ductus arteriosus and the increasing importance of a correct pre-operative diagnosis in the light of decreasing surgical mortality is made.

2. The circulatory dynamics of the patent ductus arteriosus are presented.

3. The clinical picture of the patent ductus arteriosus with particular regard to diagnosis is presented. This is broken down to consider the history and physical findings.

4. The roentgenological and angiocardiographic findings and their place in diagnosis are discussed.

5. The EKG findings are discussed with a presentation and analysis of 38 cases operated on at the University of Kansas Medical Center.

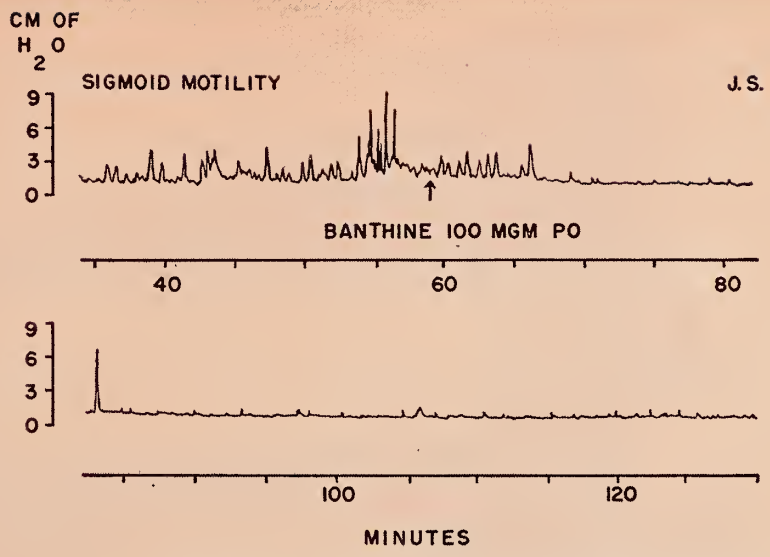
6. The indications for, technique of, mortality and results of surgery for patent ductus arteriosus are presented.

Bibliography

1. Keyes and Shapiro: Patency of the ductus arteriosus in adults. American Heart Journal, 25: No. 2, 1943.
2. Bullock, Jones, and Dolley: The diagnosis and the effects of ligation of the patent ductus arteriosus. Journal of Pediatrics, 15: No. 6, 1939.
3. Taussig, H. S.: Congenital malformations of the heart.
4. Atlas of congenital cardiac disease. American Heart Association, New York, 1936.
5. Levine, S. A. and Geremia, A. E.: Clinical features of the patent ductus arteriosus with special reference to cardiac murmurs. American Journal of the Medical Sciences, 213: 4, 1947.
6. Burchell, H. B.: Variations in the clinical and pathologic picture of patent ductus arteriosus. The Medical Clinics of North America, 32: 4, 1948.
7. Myers, G. S., Scannell, J. G. Slantey, M. W., Dimond, F. Grey, and Hurst, J. W.: Apical patent ductus arteriosus with absence of the usual aortic-pulmonary pressure gradient and of the characteristic murmur. American Heart Journal, 41: 6, 1951.
8. Ravin, Abe, and Darley, Ward: Apical diastolic murmurs in patent ductus arteriosus. Annals of Internal Medicine, 33: 4, 1950.
9. Roesler, Hugo: Clinical roentgenology of the cardiovascular system. Published by Charles C. Thomas.
10. Keele, K. D.: Angiocardiograms after ligation of the ductus arteriosus. British Heart Journal, 12: 4, 1950.
11. Schnitker: The electrocardiogram in congenital heart disease.
12. Shapiro, W. J.: The pre-operative diagnosis of patent ductus arteriosus. Journal of American Medical Association, 15: 934, 1944.
13. Burchell, H. B.: The electrocardiogram in congenital heart disease. The Medical Clinics of North America, July, 1949.
14. Oglesby, Paul, Gordon, S., and Campbell, J. A.: The electrocardiogram in congenital heart disease. A preliminary report. Circulation, 3: 4, 1951.
15. Battro, A., Mendy, J. C.: Precordial leads in children. Archives of Internal Medicine, 78 1, 1946.
16. Schaffer, A. 1., Burnstein, J., Mascia, A. V., Barenberg, P. L., Stillman, N.: The unipolar electrocardiogram of the newborn infant. American Heart Journal, 39: 4, 1950.
17. Levine, S. A.: Acta Med. Scand., Supplement. 196. 128: 145, 1947.
18. Burch, George, and Winsor, Travis: A primer of electrocardiography.
19. Shapiro, M. J.: The pre-operative diagnosis of the patent ductus arteriosus. Journal of the American Medical Association, 126: 15, 1944.
20. Steinberg, M. F., Grishman, A., Sussman, M. L.: Angiocardiography in congenital heart disease. III. Patent ductus arteriosus. American Journal of Roentgenology and Radium Therapy, 50: No. 3, 1943.
21. Donovan, M. S., Newhauser, E. B. P., Sosman, M. C.: Roentgen signs of patent ductus arteriosus. American Jounal of Roentgenology and Radium Therapy, 50: No. 3, 1943.
22. Dotter, C. T., and Steinberg, I.: Angiocardiography in congenital heart disease. The American Journal of Medicine, 12: 2, 1952.
23. Proceedings of the Staff Meetings of the Mayo Clinic Symposium on Cardiac Catheterization, No. 2. Volume 25, No. 3.
24. Proceedings of the Staff Meetings of the Mayo Clinic Symposium on Cardiac Catheterization, No. 1. Volume 23, No. 22.
25. Gross, R. E., and Longino, L. A.: The patent ductus arteriosus. Observations from 412 surgically treated cases. Circulation. 3, No. 1, 1951.
26. Benn, J.: The prognosis of patent ductus arteriosus. British Heart Journal, 9: No. 4, 1947.
27. Eppenger, E. C., Burwell, S., Gross, R. E.: The effects of the patent ductus arteriosus on the circulation. Journal of Clinical Investigation, 20: No. 2, 1941.
28. Adams, F. H., and Forsyth, W. B: The effect of surgery on the growth of patients with patent ductus arteriosus. The Journal of Pediatrics, 39: No. 3, 1951.
29. Blalock, Alfred: Operative closure of the patent ductus arteriosus. Surgery, Gynecology and Obstetrics, 82: No. 2, 1946.
30. Gross, R. E., Hubbard, J. P.: Surgical ligation of a patent ductus arteriosus. Journal of the American Medical Association, 112: No. 8, 1939.
31. Shapiro, M. J., Johnson, E.: Results of surgery in patent ductus arteriosus (a summary). American Heart Journal, 33: No. 5, 1947.
32. Personal communication from Dr. Robert E. Gross.
33. Personal communication from Dr. Dwight C. McGoon.
34. Personal communication from Dr. Willis J. Potts.

"By 1992, most of the usual contagious diseases of childhood should be a thing of the past," said Dr. Martha M. Eliot, chief of the Children's Bureau, Federal Security Agency, recently. She reported that some childhood diseases have become "out of date" within the past 40 years. These include whooping cough, scarlet fever, smallpox and typhoid fever. During the next 40 years, she said, such diseases as tuberculosis, pneumonia, poliomyelitis and rheumatic fever should be a thing of the past.

In 1912, when the Bureau was created, 100 babies died during their first year of life for every 1,000 born alive. By 1950 this rate had been cut 71 per cent, to 29 baby deaths per 1,000 born alive.



The effect of 100 mg. of Banthine on sigmoid motility. The contractions did not return during the experimental period.[1]

In Intestinal Hypermotility—Banthine®

"...has a prolonged inhibitory effect on human gastrointestinal motility....
The duration of its action is striking,...."[1]

It has also been observed that definite retardation in gastrointestinal transit time in individuals with hypermotility was attributable to the therapeutic effect of Banthine.[2]

BANTHINE® Bromide (brand of methantheline bromide)—a true anticholinergic—is available for oral and parenteral use.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

1. Kern, F., Jr.; Almy, T. P., and Stolk, N. J.: Effects of Certain Antispasmodic Drugs on the Intact Human Colon, with Special Reference to Banthine (β-Diethylaminoethyl Xanthene-9-Carboxylate Methobromide), Am. J. Med. *11*:67 (July) 1951.

2. Lepore, M. J.; Golden, R., and Flood, C. A.: Oral Banthine, an Effective Depressor of Gastrointestinal Motility, Gastroenterology *17*:551 (April) 1951.

RESEARCH IN THE SERVICE OF MEDICINE **SEARLE**

THE KANSAS PRESS LOOKS AT MEDICINE

Editor's Note: In this section the Journal reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

Medical Warning

It is always dangerous to publicize the findings of medical research. People who are in deadly fear of a particular disease grasp at the least mention of progress along a certain research line and build false hopes on it. But it is important for people to know that something is being done to find the causes of diseases and methods of preventing and treating them.

It may be that the first step toward producing vaccine which would offer immunity against poliomyelitis may have been taken by a scientist who succeeded in growing a polio virus in chicken eggs. He has made several experiments with vaccines using monkeys as subjects and the experiments seem to indicate that he is on the right track. He emphasizes, however, that he may still be a long way from a vaccine which can guarantee immunity with safety.

Research in the laboratories will go on and the present methods of treatment of the disease will be used and improved as new knowledge is gained. Beating a disease is a long, hard job. It is well for the public to have faith that answers will be found in time but undue optimism can only result in misery.—*Abilene Reflector-Chronicle, October 19, 1952.*

* * *

More Hospital Care

According to an American Medical Association report, American hospital service last year reached an all-time high. In 6,637 registered hospitals, 18,237,118 patients were admitted—one every 1.7 seconds.

There was also a very marked gain in extending accident and health protection among the people, as measured by the accurate yardstick of premium income. This income for accident and health insurance increased almost 28 per cent over 1950. Blue Cross, Blue Shield and similar plans reported an increase of 14 per cent. Group accident and health insurance jumped nearly 41 per cent.

What is the significance of such facts as these? They show that we are making substantial and steady progress toward solving the financial problems that come with sickness and accidents. And we are doing it voluntarily, as individuals and members of organizations. We aren't doing it because the government tells us we must and taxes us to pay for it—as would be the case under Federal compulsory health insurance.

That we still have a long way to go is evident. So is the fact that we are going in the right direction. In those nations, such as England, which have attempted to solve all the problems at one fell swoop by saying, "let the government do it," medical standards have dropped alarmingly and the public health has suffered. In the United States, by contrast, more people have more and better care than in any other major nation. The record speaks for itself.—*Coffeyville Journal, July 18, 1952.*

* * *

Joker Was Boost to Socialized Medicine

Congress recently voted down a social security bill which would have increased old age benefits. A house leader charged that a "pressure campaign" conducted by the American Medical Association was responsible.

This was at once answered by the association's president, who said, "In all likelihood the increase in old age benefits would have been voted without serious opposition, if the sponsors of the legislation had presented an honest bill to achieve that purpose. Such legislation certainly would not have been opposed by the Amreican Medical Association, and will not be opposed by the AMA at any time that it is honestly presented.

"The defeat of the bill. . . was due to the fact that its sponsors sought to trick their fellow congressmen by a hidden section in the act designed to establish a legal basis on which the Federal Security Administrator could begin to exercise political control over the care of the sick and the practice of medicine. . . The bill was defeated not by AMA, but by the aroused members of congress who had discovered the duplicity of the legislation's sponsors."

The sponsors tried to slip in a joker clause which would have started us along the road to socialized medicine or government-bossed medicine. The advocates of that haven't been able to get to first base by direct, forthright methods—congress is overwhelmingly opposed to turning the practice of medicine over to the tender mercies of the bureaucrats and machine politicians. So now they are trying deception. In this instance the elderly people who receive social security checks were the victims.—*Cherryvale Republican, June 21, 1952.*

Make hotel reservations now for the 1953 meeting of the Kansas Medical Society. The place is Wichita. The dates are May 3 through May 7.



NEW

FLAVORED

CHILDREN'S SIZE

BAYER ASPIRIN

Sig.



We will be pleased to send samples on request.

THE BAYER COMPANY DIVISION *of Sterling Drug Inc.* 1450 Broadway, New York 18, N. Y.

BOOK REVIEWS

Correlative Neuroanatomy and Functional Neurology. Sixth edition. By Joseph J. McDonald and Joseph G. Chusid. Published by Lange Medical Publications, Los Altos, California. 263 pages, 177 illustrations.

The fact that this manual has gone through six editions proves its value has been accepted by medical students, beginners in neurology and physicians for handy, quick reference. It accomplishes quite well the monumental task of condensing into concise outline format the entire subject matter of neuroanatomy, neurophysiology and clinical neurology.

Its anatomical diagrams are well done, its summary charts are concise and valuable, and its text is beautifully condensed into the briefest outline form possible.

This latest edition includes revision in the fields of aphasia, headache, syncope, and muscle testing, as well as additional charts, diagrams and illustrations.

This is an excellent manual for quick reference for any physician who faces any problem related to neuroanatomy or neurology.—*W.P.W.*

* * *

The Low Fat Diet Cookbook. By Dorothy Myers Hildreth and Eugene A. Hildreth. Published by Medical Research Press, New York 17, New York. 160 pages. Price $2.95.

The basic low fat diet is explained in simple words showing the patient what to eat and how to prepare it. Between 25 and 35 grams of fat are the figures used in setting up this diet, although the fat content may vary from 10 grams on up as desired by the physician. The amount of fat in grams is given for each serving of a particular food.

The authors give a brief discussion of cholesterol in relation to fat and what part it plays in atherosclerosis. How to adjust the diet to lose or gain weight is explained also.

Many helpful hints on planning menus are given with examples showing how this may be done. However, the menus give only about 50 to 55 grams of protein a day.

The use of mineral oil as recommended on this diet is questionable since it is felt by some authorities to prevent the absorption of the fat soluble vitamins.

Borden's Starlac is the only dried skim milk suggested, but any dried skim milk on the market may be used.

The recipes are interesting and varied and offer much toward keeping the diet palatable and attractive.—*E.C.R.*

* * *

Research in Endocrinology. By August A. Werner and Associates. Published by Belleville Daily Advocate, Belleville, Illinois. 285 pages.

The book records the accomplishments, publications, lectures, and biography of Doctor Werner.

Nine research problems are briefly presented, and the studies are reported as reprints taken from the original publications.

The studies include "Hypoovarian Syndrome," "Climacteric Psychosis," "The Male Climacteric," "The Effect of Theelin Injections on Castrate Women," "Effective Clinical Dosages of Theelin in Oil," "Significance of These Experiments," "A Survey of Estrogenic Dosage," "Effect of Gonadotropic Extract of the Anterior Pituitary in Cryptorchidism," and "Growth in Children With Mongolism."—*H.W.V.*

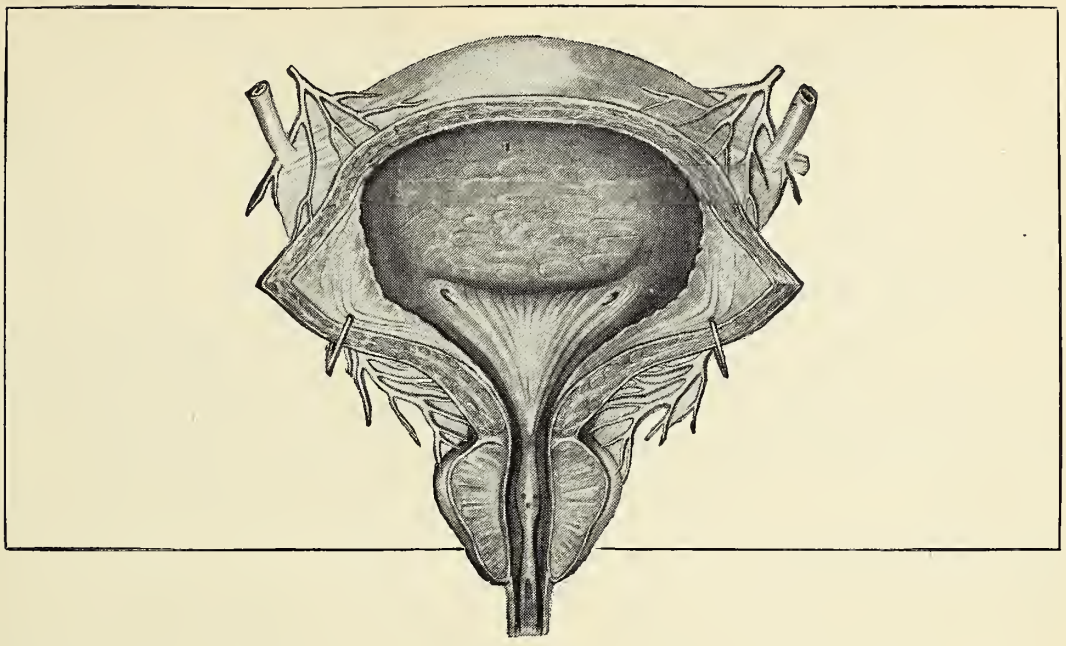
* * *

Annals of the New York Academy of Sciences, Vol. 54, Art. 6, pp. 869-1,232, edited by R. W. Minor. Entitled Viruses as Causative Agents in Cancer. Published by New York Academy of Sciences, New York City, 173 illustrations. Price $4.00.

This review is composed of 31 short papers which should prove to be of interest not only to oncologists and virologists but also to all the medical profession. The coverage is so comprehensive, yet brief, as to provide much fundamental knowledge of these fields in palatable capsule form for busy progressive physicians. Development of certain tumors and tumor-like growths in a wide variety of plants and animals, including man, is described, and the possible role of viruses in these tumors is discussed.

Koch's postulates have rarely been fulfilled, but the evidence is in many instances at least highly suggestive of viral etiology, although often it is not convincing. Pinkerton states that inclusion bodies are found in about half of the known virus diseases and, on the whole, the evidence for the occurrence of true vital inclusions in mammalian tumors is far from convincing. Such inclusions are absent in the vast majority of tumors. Electron microscope studies of known viruses and the lesions they produce are valuable.

Two groups of investigators report finding with the electron microscope particles comparable to the mammary tumor virus in human milk. These were found more frequently and in larger numbers in the milk of women with cancer or a history of cancer in the family than in women without such a history. However, these studies with the electron microscope merely serve to point out the need for ancillary methods such as ultracentrifugation, ultra-



Retention Relieved Pharmacodynamically

URECHOLINE® is highly effective in the prevention and control of bladder dysfunction including postoperative urinary retention. It increases muscular tone of the bladder and produces a contraction sufficiently strong to initiate micturition and empty the bladder. Encouraging results also have been reported following the use of URECHOLINE in gastric retention, abdominal distention, and megacolon.

Reprint of recent clinical report available on request

URECHOLINE® Chloride

(Bethanechol Chloride Merck)

COUNCIL ACCEPTED

Research and Production for the Nation's Health

MERCK & CO., INC.
Manufacturing Chemists
RAHWAY, NEW JERSEY
In Canada: MERCK & CO. Limited—Montreal

© Merck & Co., Inc.

filtration, inactivation, immunity and transmission studies for the detection and identification of viruses. A paper by Koprowski on "Latent or Dormant Viral Infections" should prove of practical value to all practicing physicians.

It would appear that the purpose as set forth by Dr. Goldsmith in the preface should be forthcoming from this volume: that is, "It will do more than provide another volume to the already very extensive cancer bibliography; it will synthesize existing knowledge, catalyze present investigations, and stimulate many new researches and discoveries."—*H.I.F.*

* * *

Gynecologic and Obstetric Pathology with Clinical and Endocrine Relations. Third edition. By Emil Novak. Published by W. B. Saunders Company, Philadelphia. 595 pages, 630 illustrations, 19 in color. Price $10.

The third edition of Novak's well known book on pathology of the female generative tract brings the material up to date with addition of the latest knowledge of the various subjects covered.

This book can be very highly recommended to anyone interested in the subject of gynecologic and obstetric pathology.—*R.L.N.*

* * *

Synopsis of Pathology. By W. A. Anderson. Published by C. V. Mosby Company, St. Louis. 788 pages, 334 illustrations, 13 in color. Price $8.00.

This is an unusually concise, accurate, up to date informative account of the field of pathology. It is midway between the usual sterile outline and the more voluminous textbooks of pathology and should be popular to the medical student and others whose time and finances are limited and who still wish access to a satisfactory survey of the field. In fact, it is remarkable that so much information can be crowded into such a small space.

Twenty-three well selected tables are included and aid in clarifying and crystallizing the text. Occasional gaps in enumeration of recent technics occur, such as the failure to mention the periodic acid Schiff test in the evaluation of polysaccharides, but are to be expected in such a small volume.

The illustrations are numerous and generally well selected, though some of the duplicated histologic cuts appear either superfluous or obscure. However, to have over 300 satisfactory illustrations in such a small book is quite remarkable. The colored plates are good.

An excellent feature is the brief but highly discriminating bibliography that is appended at the end of each chapter. The references are well selected and obviously supplement the too brief text.

The book is hardly a stimulating text, but is loaded with dependable information.—*H.R.W.*

ANNOUNCEMENTS

A meeting of the St. Louis University School of Medicine Alumni will be held in the Onyx Room of the Brown Palace Hotel, Denver, on Wednesday, December 3, during the A.M.A. Clinical Session. Reservations should be made to the University School of Medicine, 1402 Grand Boulevard, St. Louis 4, Missouri.

* * *

The first annual clinical session of the American Academy of Obstetrics and Gynecology will be held at the Palmer House, Chicago, December 15-17. The meeting will feature six general sessions and 48 discussion groups of 40 fellows each.

The Academy was incorporated on August 14, 1951, and already has some 2,400 qualified fellows. The address is 116 South Michigan Avenue, Chicago 3, Illinois.

* * *

The 19th annual meeting of the American College of Chest Physicians will be held at the Hotel New Yorker, New York City, May 28-31, 1953. Physicians who wish to present papers should submit titles and abstracts to Dr. Arthur M. Olsen, Chairman, Committee on Scientific Program, Mayo Clinic, Rochester, Minnesota.

* * *

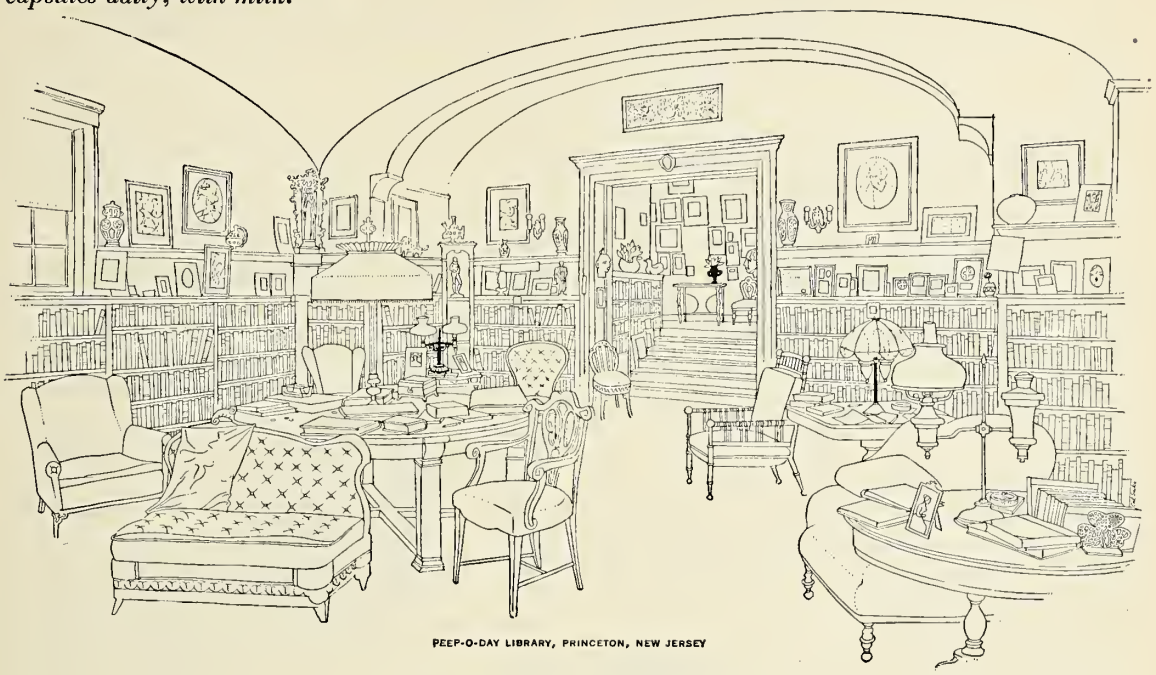
The National Foundation for Infantile Paralysis announces the availability of a limited number of postdoctoral clinical fellowships in physical medicine and rehabilitation to candidates who wish to become eligible for certification in that field. Fellowships will cover a period of from one to three years, and stipends are based on individual need.

Short-term fellowships, from three months to one year, are also available to physicians who wish to become better acquainted with physical medicine as it relates to their particular specialties. Such training is being offered to physicians who have completed a minimum of one-year residency in orthopedics, pediatrics, neurology or internal medicine.

Complete information may be secured from the Division of Professional Education in care of the Foundation, 120 Broadway, New York 5, New York.

The Public Health Service was recently forced to close four of its general hospitals as a result of Congressional cuts in Veterans Administration appropriations, Oscar R. Ewing, Federal Security Administrator, announced recently. Patients in the hospitals include merchant seamen, personnel of the Coast Guard, federal employees injured in line of duty, and others for whom the Service is responsible under law.

New aureomycin minimal dosage for adults—four 250 mg. capsules daily, with milk.



PEEP-O-DAY LIBRARY, PRINCETON, NEW JERSEY

a low cost antibiotic in the broad-spectrum field is

AUREOMYCIN

Hydrochloride Crystalline

because

Low dosage of aureomycin has very frequently been reported in the literature to be entirely effective.

Small amounts of aureomycin may reduce disability, or hospital stay, to a few days.

Early use of aureomycin may forestall those failures that have been reported in the literature following penicillin and streptomycin.

The proven range of clinical usefulness of aureomycin is so wide that, when clinical diagnosis is established, prolonged and costly laboratory studies are largely unnecessary.

Capsules: 50 mg.—Vials of 25 and 100.
100 mg.—Vials of 25 and bottles of 100.
250 mg.—Vials of 16 and bottles of 100.

Ophthalmic Solution: Vials of 25 mg.; solution prepared by adding 5 cc. distilled water.

LEDERLE LABORATORIES DIVISION *AMERICAN Cyanamid COMPANY* 30 Rockefeller Plaza, New York 20, N. Y.

ABSTRACTS FROM CURRENT LITERATURE

Histoplasmosis Treated with Ethyl Vanillate

Treatment of Disseminated Histoplasmosis with Ethyl Vanillate. By Amos Christie, et al, Pediatrics, 7:1, 7-18, Jan. '51.

Previously patients with disseminated histoplasmosis of the progressive type have been doomed to die. A study of the literature and the author's experience with 23 previous cases have made it quite evident that no control series was needed to make an evaluation of the effect of ethyl vanillate.

Ethyl vanillate is a by-product of the sulphite pulp manufacturing process. It is made by esterifying vanillic acid, obtained by oxidizing the lignin in the spent liquor from sulphite pulp. It is a low melting, colorless, crystalline solid which may be distilled under pressure (reduced) to give a colorless viscous oil of 99 per cent or greater purity. The oil may be supercooled below its melting point and handled as a liquid at room temperature. The agent is fungistatic or fungicidal.

The records of 12 patients with progressive disseminated histoplasmosis treated with ethyl vanillate have been reviewed. Five of these patients are alive and apparently well following treatment. This experience has not been previously reported in the literature.

This drug has a 30 to 40 per cent margin of safety which really makes it a dangerous drug for general usage.—*D.R.D.*

* * *

Adenoma of the Thyroid

Malignancy in Adenoma of the Thyroid. By Frank H. Lahey and Hugh F. Hare, J.A.M.A., 145: 10, 689-695, Mar., '51.

Except for the rare case of the microscopic diagnosis of carcinoma in hyperplastic thyroid glands, it is now quite generally accepted that the origin of cancer of the thyroid gland is in the preexisting adenoma of the gland. Credit is given to Dr. Allan Graham for his work in connection with malignancy in adenoma of the thyroid. It has not been easy to convince internists of the danger of malignant change that exists in adenomatous goiter. This has been due in part to the fact that reports on malignancy were on a general basis of all types of nodular goiters rather than on the separation of discrete from the multiple adenoma.

In 1,971 consecutive discrete adenomas, malignancy is shown to be 10.04 per cent while in 1,782 multiple adenomatous goiters malignancy is shown to be 0.62 per cent. This percentage of malignancy in discrete adenomas of the thyroid is too high to justify delaying surgical intervention against such tumors. It can, in fact, almost be said that if every discrete adenoma of the thyroid could be removed in its earliest stages, we would be able to eliminate almost entirely the occurrence of cancer of the thyroid.

This brings up the question as to what size discrete adenoma of the thyroid should be removed and if in young people, at what age? If one agrees with the authors that a discrete adenoma is true cancer, then it must be assumed that it will never disappear but will eventually increase in size.

Thus it presents a constant danger of cancerous change, and it is for this reason the authors state, "The smaller the adenoma, the greater the reason for its removal. If a child has a discrete adenoma, why expose him to this danger of cancerous change? All discrete adenomas, however small, and even in very young people should be removed as a prophylactic measure."

In a study of 428 patients with cancer of the thyroid, 136 cases revealed the tumor confined within the capsule, and resection of the discrete adenoma resulted in a five-year cure. Hence, irradiation and block dissection of the neck was done on the cases that have shown extension of the neoplasm into either the surrounding tissue or lymph glands.

The authors feel that "prophylactic early removal of the discrete adenoma of the thyroid would do much to lower, if not abolish, the occurrence of cancer of the thyroid."—*J.J.H.*

* * *

Palliative Treatment of Rheumatoid Arthritis

Cortisone Plus Insulin in the Palliative Treatment of Rheumatoid Arthritis; A Preliminary Study. By Edward Henderson, John W. Gray, Marvin Weinberg, Evelyn Merrick and Harry Seneca, Jrl. Clin. Endoc., 11:2, 119-133, Feb. '51.

Most authors are agreed that large doses of cortisone are mandatory in the successful treatment of rheumatoid arthritis. Laboratory experiments indicate that adrenocortical tissue in vitro can convert a number of 21-carbon steroids lacking an oxygen at carbon 11 to steroids having this configuration. One study indicates that insulin facilitates this process. Such considerations prompted a trial with combined cortisone and insulin therapy.

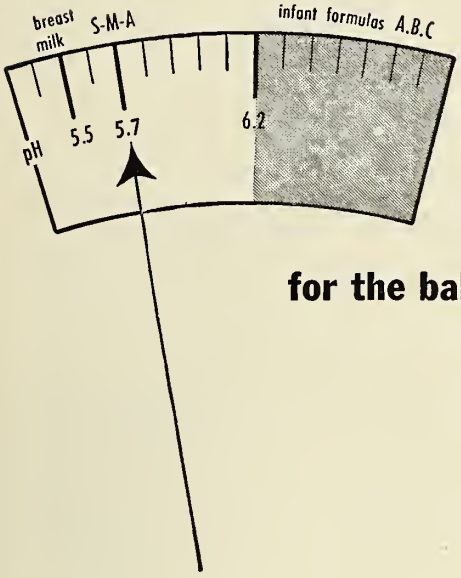
Twelve patients with typical rheumatoid arthritis of widely variable duration were treated. Four patients received for the first 10 days single injections daily of 12.5 mg. of cortisone and 20 units of regular insulin in the same syringe, for the second 10 days single daily injections of 50 mg. and 20 units in the same manner, and for the third 10 days 50 mg. and 40 units daily, divided into two doses at 9:00 a.m. and 4:00 p.m. A second group of four received 25 mg. of cortisone and 40 units of regular

clinical tests show S-M-A®

is the only infant feeding formula that



- establishes a predominantly gram-positive flora—similar to the flora of the lower intestine of the breast-fed baby.[1]



- produces a stool with a pH "practically identical" with that of the infant fed human milk. Stools of babies fed other formulas are distinctly more alkaline (6.2 to 6.7).[1]

for the baby S-M-A means:

1 *Better absorption of minerals, especially calcium.*

2 *Lower incidence of constipation.* Formation of calcium soaps is inhibited; acid produced by fermentation stimulates peristalsis.

3 *Lessened susceptibility to diarrhea.* Lactobacilli inhibit overgrowth of 'colon' group bacilli.

4 *A stool typical of the breast-fed infant*—having a "buttermilk-like", rather than putrefactive odor.

5 *Vitamins more readily available, especially vitamin* B_{12}. Growth of putrefactive organisms which reduce amounts of vitamins available[2] is inhibited.

6 *Minimal danger of perianal dermatitis and diaper rash in the new-born.*[3]

ACCEPTED COUNCIL ON FOODS AND NUTRITION AMERICAN MEDICAL ASSOCIATION

REFERENCES

1. Barbero, G.J., Runge, G., Fischer, D., Crawford, M.N., Torres, F. E., and Gyorgy, P.: J. Pediat. *40*:152 (Feb.) 1952.
2. Lichtman, H., Ginsberg, V., and Watson, J.: Proc. Soc. Exp. Biol. and Med. *74*:884 (Aug.) 1950.
3. Torres, F.E., Romans, I.B., and Wheller, J.B.: A Study of Infantile Diaper Rash. To be published.

Wyeth®

insulin daily, divided into two doses at 9:00 a.m. and 4:00 p.m. for 10 days, and then 50 mg. and 40 units daily given in the same manner for 20 days. The last group of four patients received 25 mg. cortisone and 40 units of regular insulin in two doses at 9:00 a.m. and 4:00 p.m. daily for 10 days, then 50 mg. and 40 units in the same manner for 10 days, then 50 mg. and 60 units for 10 days.

Results: 12.5 mg. cortisone plus 20 units of insulin had no significant effect; 25 mg. cortisone plus 40 units of insulin produced fall in sedimentation rate in six of eight cases and distinct clinical improvement in four; 50 mg. cortisone with either 20 or 40 units of insulin produced complete remission in seven cases, major improvement in four, and minor improvement in one. Increasing the insulin dose to 60 units did not appear to materially influence or improve the outcome.

Injecting insulin and cortisone together or separately seemed to make no difference.

Results with 50 mg. and 40 units are comparable to those obtained with 100 mg. or more daily when cortisone is used alone.

No significant effects on blood count, blood pressure or blood sugar could be detected.

Hypoglycemia usually occurred on the first or second day of treatment.

Comparable results could not be obtained by using protamine zinc insulin with cortisone.

Discussion: There is no reason to believe that rheumatoid arthritis results from adrenocortical insufficiency. Use of cortisone is not physiologic. It is pharmacologic, an overwhelming pharmacodynamic action.

These authors postulate that the well-known glycogenic action of cortisone induces an extraordinary and pathologic synthesis of carbohydrate at the cellular surface-boundary. Thus unidentified noxious agents, such as the etiologic factor or factors responsible for rheumatoid arthritis, become unable to provoke inflammation; they are confronted with cells somewhat indestructible for the time being. Insulin is supposed to be beneficial by making more utilizable carbohydrate material available for the action of cortisone upon cellular structure.—*E.J.R.*

Most people resist education and only the few seek it. Educators tell us there are three periods in life when the individual is very ready to learn: (1) the little child who is eager to learn everything; (2) the young mother who wants to learn how to care for her child; and (3) the person who is ill and is very anxious to learn how to regain his health. The patient is a member of a community; he is anxious to learn how to get well and stay well, but he cannot learn without a teacher. The logical persons to reinforce the formal instruction which the patient receives, whether that instruction be given by the doctor or a nurse, are the members of the nursing staff in their daily contacts with the patient.—*Aileen Flett, R.N., Medical Papers of the Annual Meeting of the Canadian Tuberculosis Association, May, 1951.*

Study of Physical Impairments

An actuarial study of physical impairments, embracing 15 years of experience under 400 classes of impairments and the tabulation of many millions of entries, was recently begun by the Committee on Mortality of the Society of Actuaries. Life insurance companies will provide information and statistics.

The study will include practically all physical impairments except abnormal blood pressure and abnormal build. Results will be presented in a way that will relate deaths among policyholders with impairments, as recorded in applications for policies when purchased, to the expected death rates if the applicants had been normal risks.

The important groups to be investigated are: heart murmurs, rheumatic fever and arthritis, rapid or irregular pulse, history of tuberculosis, gall bladder disorders, gastric and duodenal ulcers, renal colic, albuminuria, glycosuria, goiter, blindness, deafness, neurasthenia, hysterectomy and similar operations, and family history of cardiovascular-renal disease and diabetes.

The findings are expected to permit conclusions to be drawn as to the mortality experienced in recent years for a wide variety of medical impairments. It is known that the general level of mortality has changed radically in the past 15 years. The last comprehensive study was made in 1929, based on experience under policies issued in the preceding 20 years.

"A high I.Q. doesn't necessarily mean that a child will be a superior student in school," says Mrs. Cleon J. Truitt, psychologist for the Chicago Public Schools for Crippled Children. "Other inherent traits such as drive, determination, emotional stability, social adaptability and physical proficiency also contribute to success.

"The term does not deserve all the notoriety it receives. It can be used synonymously with general rate of mental growth. In this respect it could be said that each of us has an I.Q., whether or not it has been measured, just as each of us has height and weight, even if these figures have never been determined."

The outcome of the national election should have no bearing on the physician's interest in politics and legislation. As a good citizen, he should be informed.

50 and Five

YEARS TREATING ALCOHOL AND DRUG ADDICTION

In 1897 Doctor B. B. Ralph developed methods of treating alcohol and narcotic addiction that, by the standards of the time, were conspicuous for success.

Twenty-five years ago experience had bettered the methods. Today with the advantages of collateral medicine, treatment is markedly further improved.

The Ralph Sanitarium provides personalized care in a quiet, homelike atmosphere. Dietetics, hydrotherapy and massage speed physical and emotional re-education. Cooperation with referring physicians. Write or phone.

The

RALPH SANITARIUM

Established 1897

Ralph Emerson Duncan, M.D.
DIRECTOR



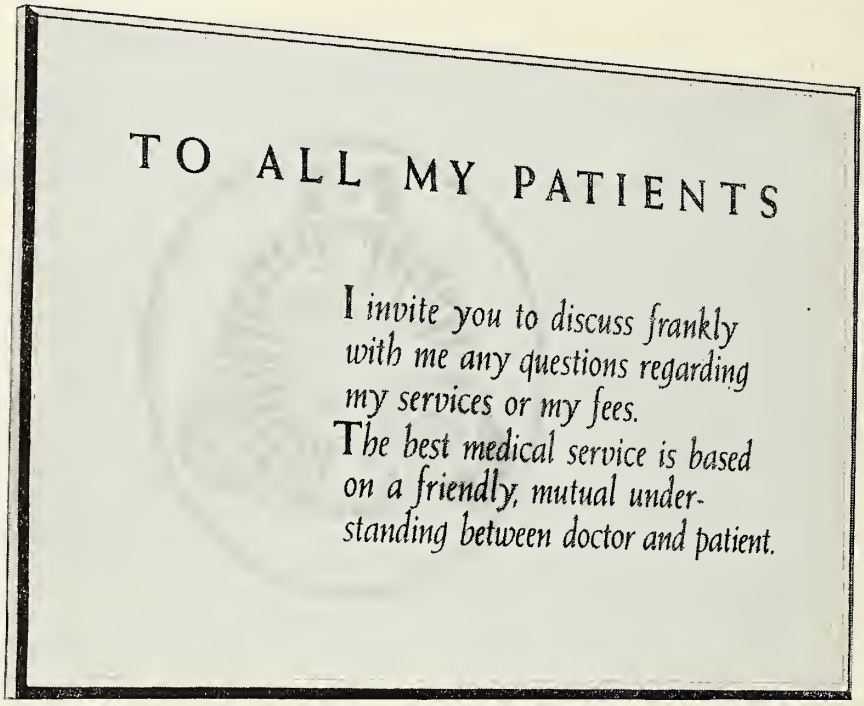
529 HIGHLAND AVENUE • KANSAS CITY 6, MISSOURI

Telephone Victor 3624

announcing

A NEW PUBLIC RELATIONS AID

. . . to boost your PR rating



NEW OFFICE PLAQUE

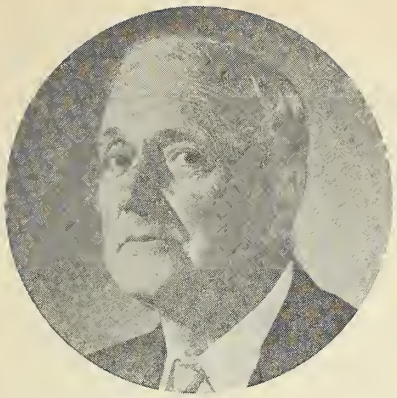
- ✓ dark brown lettering on buff
- ✓ harmonizes with any office decor
- ✓ measures 11½ by 7¾ inches
- ✓ for desk or wall
- ✓ laminated plastic finish

As you know, a physician's best public relations is carried on right in his own office. Here the physician gets acquainted with his patients . . . gives them a chance to talk over problems . . . builds a feeling of mutual understanding between patient and doctor.

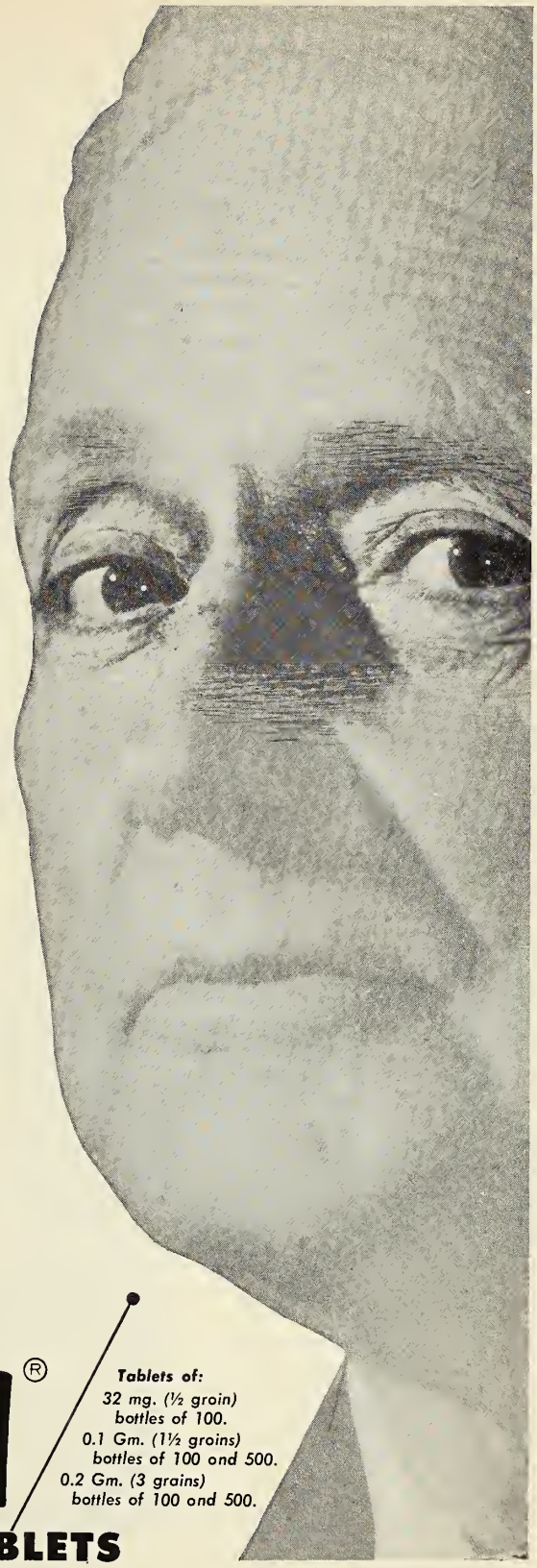
Your American Medical Association has designed an attractive new office plaque to be displayed prominently on an office desk or wall. This is a graphic invitation to patients to talk over professional services and fees. Patients like to ask questions, but often are hesitant to do so. This plaque will open the door to better relations with your patients. Order one today.

PRICE
$1
POSTPAID

Order Department
AMERICAN MEDICAL ASSOCIATION
535 North Dearborn Street
Chicago 10, Illinois



Relaxed but awake



In emotional and nervous disorders, Mebaral exerts its calming influence without excessive hypnotic action.

Mebaral is also a reliable anticonvulsant.

INDICATIONS:

Because of its high degree of sedative effectiveness, Mebaral finds a great field of usefulness in the regulation of agitated, depressed or anxiety states, as well as in convulsive disturbances. Specific disorders in which the calming influence of Mebaral is indicated include neuroses, mild psychoses, nervous symptoms of the menopause, hypertension, hyperthyroidism and epilepsy.

Mebaral®

Tasteless **TABLETS**

Tablets of:
32 mg. (½ groin)
bottles of 100.
0.1 Gm. (1½ groins)
bottles of 100 ond 500.
0.2 Gm. (3 grains)
bottles of 100 ond 500.

WINTHROP-STEARNS INC. New York 18, N.Y., Windsor, Ont.

Mebaral, trademark reg. U. S. & Canada, brand of mephobarbital

ACCIDENT • HOSPITAL • SICKNESS
INSURANCE

For Physicians, Surgeons, Dentists Exclusively

ALL PREMIUMS COME FROM — PHYSICIANS SURGEONS DENTISTS — ALL CLAIMS GO TO

$5,000 accidental death — Quarterly $8.00 **$25 weekly indemnity, accident and sickness**	**$15,000 accidental death — Quarterly $24.00** **$75 weekly indemnity, accident and sickness**
$10,000 accidental death — Quarterly $16.00 **$50 weekly indemnity, accident and sickness**	**$20,000 accidental death — Quarterly $32.00** **$100 weekly indemnity, accident and sickness**

COST HAS NEVER EXCEEDED AMOUNTS SHOWN

ALSO HOSPITAL INSURANCE

	Single	Double	Triple	Quadruple
60 days in Hospital	5.00 per day	10.00 per day	15.00 per day	20.00 per day
30 days of Nurse at Home	5.00 per day	10.00 per day	15.00 per day	20.00 per day
Laboratory Fees in Hospital	5.00	10.00	15.00	20.00
Operating Room in Hospital	10.00	20.00	30.00	40.00
Anesthetic in Hospital	10.00	20.00	30.00	40.00
X-Ray in Hospital	10.00	20.00	30.00	40.00
Medicines in Hospital	10.00	20.00	30.00	40.00
Ambulance to or from Hospital	10.00	20.00	30.00	40.00

COSTS (Quarterly)

Adult	2.50	5.00	7.50	10.00
Child to age 19	1.50	3.00	4.50	6.00
Child over age 19	2.50	5.00	7.50	10.00

$4,000,000.00 INVESTED ASSETS

PHYSICIANS CASUALTY ASSOCIATION
PHYSICIANS HEALTH ASSOCIATION
50 years under the same management

$18,900,000.00 PAID FOR CLAIMS

400 FIRST NATIONAL BANK BUILDING — OMAHA 2, NEBRASKA

$200,000.00 deposited with State of Nebraska for protection of our members

THE NEUROLOGICAL HOSPITAL

announces the completion of

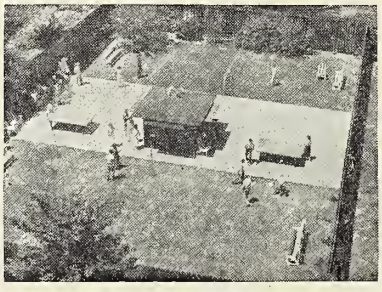
A NEW GERIATRICS UNIT

Fire Proof — Elevator For The Physically Ill — All Hospital Facilities

Choice of Kansas City Psychiatrists — Fully Controlled by the Medical Staff — Lower Rates Than in the Main Hospital

Medical Staff —

Sylvia Allen
Edward E. Baumhardt
Marvin L. Bills
John D. DeMott
Merrill T. Eaton
B. Landis Elliott
Louis H. Forman
Paul Hines
Morton Jacobs



Medical Staff —

Frank J. Koenig
Louise B. Loewy
Albert Preston, Jr.
G. Wilse Robinson
G. Wilse Robinson, Jr.
William F. Roth, Jr.
A. T. Steegmann
E. H. Trowbridge, Jr.
James E. Young

Recreation Area Available to All Hospital Patients

Address All Inquiries to Individual Psychiatrists or to the Neurological Hospital, 2625 West Paseo, Kansas City, Mo.

THE LATTIMORE-FINK LABORATORIES

Topeka El Dorado
Kansas

J. L. Lattimore, A.B., M.D., Pathologist
A. A. Fink, A.B., M.D., Pathologist
H. C. Ebendorf, M.T. Serologist
A. C. Keith, B.S., Chemist
L. W. Hull, A.B., Bacteriologist
Walter Norris, A.B., Chemist

Anatomical and Clinical Pathology

Containers Furnished Upon Request

Medical and Surgical Supplies for Doctors of Medicine and Hospitals.

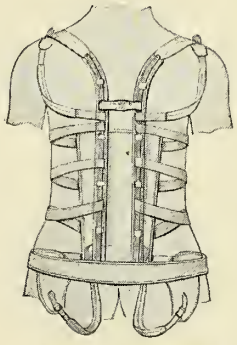
Munns Medical Supply Co.

512 Kansas Ave.
Topeka, Kansas

Deformity Appliances of Quality

Orthopedic and Surgical Appliances
Artificial Limbs

Trusses
Abdominal Supports
Elastic Hosiery
Foot Supports
Surgical Corsets



Taylor Back Brace

Made to Order
In Our Own Factory

P. W. HANICKE MFG. CO.

1009 McGee St. Victor 4750
KANSAS CITY, MO.



THE BROWN SCHOOL

Four distinct units. Tiny Tots through the Teens. Ranch for older boys. Special attention given to educational and emotional difficulties. Speech, Music, Arts and Crafts. A staff of 12 teachers. Full time Psychologist. Under the daily supervision of a Certified Psychiatrist. Registered Nurses. Private swimming pool, fireproof building. View book. Approved by State Division of Special Education.

BERT P. BROWN, DIRECTOR
PAUL L. WHITE, M.D., F.A.P.A.,
MEDICAL DIRECTOR
P. O. Box 4008, Austin, Texas

Everything for the Laboratory

Southwest Scientific Corporation

LABORATORY SUPPLIES AND EQUIPMENT

122 South St. Francis Street

Phone 2-0582 Wichita, Kansas

SECLUSION MATERNITY



Fairmount HOSPITAL

FOR UNMARRIED GIRLS

Est. 1909

Private sanitarium with certified obstetrician in charge. All adoptions arranged through juvenile court. Early entrance advised.

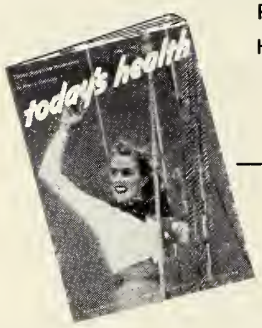
Rates reasonable. In certain cases work given to reduce expenses.

Write for Information

MRS. EVA THOMSON
4911 East 27th St.
Kansas City, Mo.

today's health a must!

for your reception room



Physicians' Half-Price Rates

4 years	$4.00
3 years	3.25
1 year	1.50

AMERICAN MEDICAL ASSOCIATION
535 North Dearborn · Chicago 10, Illinois

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE

ANNOUNCES

Postgraduate Course in Pediatrics
January 26, 27 & 23, 1953

Guest Instructors:

CHARLES D. MAY, M.D., Professor of Pediatrics and Chairman of Department, State University of Iowa College of Medicine, Iowa City.

MITCHELL I. RUBIN, M.D., Professor of Pediatrics and Chairman of Department, University of Buffalo, N. Y.

THOMAS E. SHAFFER, M.D., Professor of Pediatrics, Ohio State University College of Medicine, Columbus.

University of Kansas Faculty:

FRANKLIN C. BEHRLE, M.D., Instructor in Pediatrics.

CHARLES E. BRACKETT, M.D., Instructor in Surgery (Neurosurgery).

STANLEY R. FRIESEN, M.D., Associate Professor of Surgery and Oncology.

PAUL C. LAYBOURNE, JR., M.D., Assistant Professor of Psychiatry & Neurology and Pediatrics.

C. ARDEN MILLER, M.D., Instructor in Pediatrics.

HERBERT C. MILLER, M.D., Professor of Pediatrics and Chairman of Department.

G. O'NEIL PROUD, M.D., Professor of Otorhinolaryngology and Chairman of Department.

FREDERIC SPEER, M.D., Instructor in Pediatrics.

GALEN M. TICE, M.D., Professor of Radiology and Chairman of Department.

HERBERT A. WENNER, M.D., Research Professor of Pediatrics.

WILLIAM P. WILLIAMSON, M.D., Assistant Professor of Surgery (Neurosurgery).

SLOAN J. WILSON, M.D., Associate Professor of Medicine and Oncology.

Also Courses in:

Gastroenterology

December 8, 9, 10 & 11, 1952

Surgery

January 19, 20, 21, 22 & 23, 1953

Medical Technology

(For both Registered Technicians and others serving in medical laboratories.)

January 12, 13 & 14, 1953

For copy of program announcement, address:

Extension Program in Medicine
University of Kansas Medical Center
Kansas City 12, Kansas

Nationally advertised Surgical Supplies and Equipment have been placed at Topeka, Joplin, Kansas City and St. Joseph for your convenience by —

GOETZE NIEMER CO.

Management by Dr. W. F. Goetze, a member of the American Medical Association, assures intelligent servicing of your orders.

Rx Zemmer

PHARMACEUTICALS

A complete line of laboratory controlled ethical pharmaceuticals. Chemists to the Medical Profession since 1903. KA-11-52

THE ZEMMER COMPANY, Pittsburgh 13, Pennsylvania

For children from five to twelve, of average or superior intelligence, with emotional and behavior problems:

THE SOUTHARD SCHOOL
of
The Menninger Foundation

Intensive individual psychotherapy in a residential school

Outpatient psychiatric and neurologic evaluation and treatment for children up to 18 years of age is also available.

J. Cotter Hirschberg, M.D., *Director* **Topeka, Kansas, Telephone 3-6494**

Cook County Graduate School of Medicine

ANNOUNCES CONTINUOUS COURSES

SURGERY—Intensive Course in Surgical Technic, Two Weeks, starting November 3, January 19, February 2.
Surgical Technic, Surgical Anatomy & Clinical Surgery, Four Weeks, starting March 2.
Surgical Anatomy & Clinical Surgery, Two Weeks, starting March 16.
Surgery of Colon & Rectum, One Week, starting November 17, March 2.
Bronchoscopy, One Week, by appointment.
General Surgery, One Week, starting February 9.
General Surgery, Two Weeks, starting March 30.
Fractures & Traumatic Surgery, Two Weeks, starting March 2.
GYNECOLOGY—Intensive Course, Two Weeks, starting February 16.
Vaginal Approach to Pelvic Surgery, One Week, starting March 2.
OBSTETRICS—Intensive Course, Two Weeks, starting November 3, March 2.
MEDICINE—Intensive General Course, Two Weeks, starting May 4.
Gastroscopy & Gastroenterology, Two Weeks, starting November 3.
UROLOGY—Two Weeks Intensive Course starting April 27.
Ten-Day Practical Course in Cystoscopy starting every two weeks.
DERMATOLOGY—Intensive Course, Two Weeks, starting May 4.

TEACHING FACULTY—ATTENDING STAFF OF COOK COUNTY HOSPITAL

Address: Registrar, 707 So. Wood St., Chicago 12, Ill.

THE MEDICAL PROTECTIVE COMPANY
FORT WAYNE, INDIANA

PROFESSIONAL PROTECTION EXCLUSIVELY SINCE 1899

specialized service assures *"know-how"*

TOPEKA Office:
J. E. McCurdy, Rep.,
1035 Randolph Avenue,
Telephone 2-3027

Migraine In Children

"Migraine may appear during the first years of life. The presence of subjective signs, such as headache and flimmer scotoma, is often difficult to determine in young children. The true nature of the symptoms frequently remains obscure for years."

Vahlquist, B. and Hackzell, G.: Acta Paediatrica *38*: 622 (1949).

NO. OF CASES	SEX	AGE AT ONSET	CYCLIC VOMITING	DURATION OF ATTACK	INTENSITY
31	8 ♀ 23 ♂	3 yrs. (mean)	3 out of 31	2½ hrs.	severe in all cases

TABLE CONT'D

NO. OF CASES	UNILATERAL HEADACHE	NAUSEA	FLIMMER SCOTOMA	VERTIGO	HEREDITY
31	18 out of 31	31 out of 31	12 out of 31	6 out of 31	20 out of 31

(reference given above)

In a study of 400 adult migraine patients, it was revealed that 34% had suffered attacks before the age of 15.* These investigators concluded that childhood migraine was a much greater clinical problem than was previously believed and that psychodynamic mechanisms played an important part in the disease.

These criteria are useful in diagnosis:

Headache attacks with symptom-free intervals plus (at least two of the following) nausea, scintillating scotoma, hemicrania, and hereditary predisposition.

For symptomatic relief in these cases, Cafergot®, N.N.R. (ergotamine with caffeine) may be administered orally. For best results, give adequate dosage promptly.

For children within the age range 7 to 12 years—Cafergot® is administered, one tablet when the attack appears imminent followed by one additional tablet within 30 minutes. Not more than two Cafergot tablets should be administered to children within this age range.

In the adolescent age group, 12 to 18 years of age, the dosage may gradually be increased as necessary up to the usual adult dose, i.e., two tablets when the attack appears imminent followed by one tablet doses at half hour intervals until the attack is aborted. *(Total maximum dose for adults: six tablets for each attack.)*

* Katz, J., Friedman, A.P., and Gisolfi, A.: New York State J. Med. *50*: 2269 (Oct.) 1950.

Sandoz Pharmaceuticals
DIVISION OF SANDOZ CHEMICAL WORKS, INC.
68 CHARLTON STREET, NEW YORK 14, N. Y.

Index to Advertisers

Abbott Laboratories IX
American Meat Institute VI
Ayerst, McKenna and Harrison, Ltd. VII
Bayer Company, The 545
Brown School 557
Continental Casualty Company VIII
Cook County Graduate School of Medicine ... 559
Duncan Laboratories XIV
Fairmount Hospital 558
Goetze Niemer Company 559
Hanicke, P. W., Manufacturing Company 557
Kansas Oxygen, Inc. XVIII
Lattimore-Fink Laboratories 557
Lederle Laboratories, Inc. 549
Lilly, Eli, and Company Facing XVIII
Major Clinic XVIII
Mead Johnson and Company Back Cover
Medical Protective Company 559
Menninger Foundation 559
Merck and Company, Inc. 547
Munns Medical Supply Company, Inc. 557
Neurological Hospital 556
Parke, Davis and Company Inside front cover and III
Pfizer, Charles, and Company, Inc. XIII and Inside back cover
Philip Morris and Company X
Physicians Casualty Association 556
Ralph Sanitarium 553
Reynolds, R. J., Tobacco Company V
Sandoz Pharmaceuticals, Inc. 560
Schering Corporation XV
Searle, G. D., and Company 543
Smith-Dorsey Company XVII
Southwest Scientific Corporation 558
Squibb, E. R., and Sons XII
University of Kansas Medical Center 558
Upjohn Company XI
Washington National Insurance Company XVI
Winthrop-Stearns, Inc. 555
Woodcroft Hospital XVI
Wyeth, Inc. 551
Zemmer Company 559

CLASSIFIED ADVERTISEMENTS

FOR SALE—Old gas sterilizer, 3 sections, gauze, instrument and water heater, serviceable condition, $35; Sorensen suction pressure outfit, $40. Write the Journal 14-52.

PHYSICIAN WANTED—Excellent opportunity available for draft exempt physician in modern western Kansas county seat town of approximately 2,000. Only young physician on temporary deferment until replacement can be found. Only two other elderly physicians in entire county of over 9,000 population, only one of these located in this city. Write the Journal 15-52.

OFFICE AND EQUIPMENT AVAILABLE in Hutchinson. Deceased physician had fine practice. Write the Journal 16-52.

FOR SALE—Optical equipment, excellent condition, surgical instruments and office furniture. Write the Journal 17-52.

WANTED—A good recent used self-writing E.K.G. machine, a Cambridge preferred. Also a good skeleton. Write the Journal 18-52.

FOR SALE—An examining chair and glass instrument case. Reasonable. Write the Journal 19-52.

THE JOURNAL
of the
KANSAS MEDICAL SOCIETY
Owned and Published by The Kansas Medical Society

Volume LIII DECEMBER, 1952 No. 12

The Possibilities and Limitations of Isotope Therapy of Cancer*

Gould A. Andrews, M.D.

Oak Ridge, Tennessee

About 13 years ago cyclotron produced isotopes were first tried as therapeutic agents. Most of the early work was with radioactive phosphorus, and this isotope was found to have distinct but not dramatic value. Small quantities of radioactive I^{130} were also utilized, and the localization of this material in thyroid cancer opened up the intriguing possibility that malignant cells might be induced to commit suicide by assimilating destructive radioactive atoms.

Almost six years ago the United States Atomic Energy Commission made available large numbers of isotopes, most of which were produced in the nuclear reactor at Oak Ridge. The public had recently seen the achievements of modern physics displayed in the most spectacular way by the atomic bomb, and when it was suggested that related new techniques might be applied against cancer, it is not surprising that the rapid conquest of this disease was expected.

The developments of subsequent years have been bitterly disappointing to those who expected sweeping advances, but not so disappointing to those who realized from the outset the limitations of isotope therapy and the slowness of any progress against cancer. Few, if any, patients have been cured by radioisotopes. However, palliative benefit has been afforded to a considerable group. Further benefit seems possible with better understanding and utilization of isotopes. Yet none of us expect that they will ever play a major role in cancer treatment.

While the therapeutic use of radioisotopes has been progressing at a snail's pace, their use as tracers in basic biologic studies has been yielding new knowledge at an almost unbelievably rapid rate. What the future value of isotopes may be to the practicing physician is anybody's guess, but it seems safe to predict that in every basic research laboratory they will be an essential tool.

Criteria for Usefulness

Several factors must be considered in relation to the usefulness of any isotope for internal therapeutic administration. These criteria would not apply for isotopes used in interstitial applicators nor for those used outside the body in teletherapy units.

The half-life should be moderately short. Although no arbitrary limits can be stated, it seems likely that there will be little therapeutic use for isotopes with half-lives less than 15 hours or more than 30 days. The rapidly decaying elements have the disadvantage that they present a relatively greater radiation hazard to those handling them since large doses must be given to produce a significant effect.

Unless the isotope is rapidly localized within the body, much of its effect is dissipated in the blood stream or near the site of administration. For example, a very short half-lived isotope given by mouth would cause a profound radiation effect upon the stomach even if it later localized specifically in some other tissue. On the other hand, isotopes with excessively long half-lives may be too slow in producing an effect and may fail to stay in the desired site during their whole period of radioactivity. They also are believed undesirable because of the increased possibility of late carcinogenic effects.

The type of radiation emitted by the isotope is of importance. Those which produce mainly high energy gamma rays tend to have the effect of total body radiation even if localized in a specific tissue. Theoretically, the ideal isotope would be a low energy beta emitter with perfect and uniform distribution limited to the tumor tissue.

The material should be non-toxic in stable form and the isotope preparation available should have a relatively high number of radioactive atoms without an excessive number of non-radioactive atoms.

*Presented at the Fourth Annual Mid-West Cancer Conference, Wichita, Kansas, April 3 and 4, 1952.

The isotope should localize or be susceptible to localization in the desired tissue with a high degree of specificity. As will be brought out later, this is the crux of the whole problem.

Problems of Radiation Treatment

Since internally administered isotope treatment is a form of radiation therapy, it is important to give consideration to the knowledge available from many years experience with other forms of radiotherapy. We must take cognizance of the sensitivity of the various cell types to radiation, although theoretically an ideal isotope localized in an ideal manner might be effective even against the most radio resistant lesion. Since the degree of localization is never perfect, and since the radiation spectrum often is such that tissues outside the tumor are radiated, the relative sensitivity of the tumor and the normal tissues is of great importance.

It is also important to recognize the non-uniformity of sensitivity of the cells in a given tumor. It is well known that a radiation dosage which may cause an almost complete disappearance of the gross tumor may leave a few malignant cells which later will become a nidus for tumor growth. Thus a true canceridical dose is difficult to obtain with isotopes as it is in conventional radiation therapy.

Again, we must be aware of the damage produced by radiation given to the normal tissues. The region around the tumor may be subjected to excessive dosage even if the isotope is well localized, depending upon its radiation characteristics. Thus the problem is the same as in conventional radiation therapy. If too much damage is done to normal tissues, excessive fibrosis and vascular occlusion may be produced. We must also consider, even more seriously than with the older forms of radiation, the problem of effect upon distant tissues, since most of the isotopes are poorly localized. In almost every instance, the bone marrow seems to be the critical tissue and the degree of hematologic damage is often an index of safety in isotope therapy.

Outline of Methods of Using Isotopes in Cancer Therapy

It may be worth while for the sake of simplicity to classify the principal ways in which isotopes are utilized.

METABOLIC LOCALIZATION. Radioiodine stands alone as the isotope which seeks out a certain type of tissue with a high degree of selectivity. The success of this localization could have been predicted on the basis of knowledge of the metabolism of stable iodine. It is obvious that there is no other element in the body which has such a characteristic localization in its metabolic pattern. It is misleading then, to say that radioiodine is a typical example, and that there are likely to be many other isotopes of similar usefulness simply waiting to be discovered. It is apparent that any other such specific deposition, if obtainable at all, will depend upon more elaborate synthetic compounds or upon some type of physiological manipulation.

Other elements have been tried, however, and there has been some slight evidence that worthwhile localization may be obtained. We have been particularly interested in gallium^{72}, an isotope which deposits in bone, particularly at the sites of growth. This isotope shows rather high specific localization in some tumors, especially in osteoblastic zones. It also tends to be deposited at the periphery of osteolytic lesions, but to a less pronounced degree. Its deposition in soft tissue tumors has been extremely variable. Up to the present, it has been of little, if any, therapeutic value, handicapped as it is by a half-life which is short in relation to the time required for specific deposition, a radiation spectrum which includes an excess of high energy gamma, and finally, most discouraging of all, an insufficient and non-uniform selective deposition in malignant tissue. At the present time, we are undertaking studies on another gallium isotope which may be somewhat more suitable. Other efforts are being made to obtain metabolic localization, and many elements and compounds have been studied for this purpose.

TOTAL BODY RADIATION. Certain diseases, particularly polycythemia vera and chronic myelocytic leukemia, respond quite well to radiation of the total body. These diseases can also be treated quite effectively with radioactive phosphorus. Although the phosphorus shows some specific localization in marrow, liver, lymph nodes, and spleen, it is widely distributed, and the difference in concentration between various tissues is not striking. Therefore, since its effects are quite similar to those obtained with total body radiation, it seems erroneous to emphasize the relatively slight tissue specific concentration which it has. This isotope has proved to be a highly convenient form of treatment for polycythemia vera and seems to have value in certain selected cases of leukemia and lymphoma. In general, it has yielded little benefit that could not have been obtained by other means.

The possibilities that it may produce a higher instance of acute leukemia in polycythemia vera and a higher incidence of acute blast cell crises in myelocytic leukemia, however, are cause for considerable discussion at the present time. Radioactive sodium, while not convenient to use, has been shown to produce benefit in the same diseases which are helped by total body radiation and this produces an even more uniformly diffused radiation than that resulting from radioactive phosphorus.

MECHANICAL LOCALIZATION. With the realization that there are profound limitations on metabolic methods of localization, there has been

an effort to utilize more artificial means of achieving localization in malignant tumors.

The direct injection of tumors with colloidal radiogold has been developed particularly by Dr. Paul Hahn. The advantage of this method is that it is theoretically possible to achieve very high radiation dosages within the tumor without producing much damage to surrounding tissues. The disadvantages of the treatment are that it is impossible to produce a unform distribution of the colloid in the tumor and that it is often impossible to know the exact limits of the tumor and therefore to place the gold properly. There is also considerable hazard to the physician who undertakes to make the injection. At present, this form of treatment seems to have very limited value and is only palliative at best.

Recently there has been considerable interest in the direct injection of tumors of the prostate gland. It may be that this organ is particularly suitable for such treatment, and preliminary results are reported to be encouraging. The fact that the radiogold, in some cases, is picked up by lymphatics and carried to adjoining lymph nodes may add to the possible value of the treatment. This lymphatic distribution has been utilized in the treatment of carcinoma of the cervix. The radiogold is injected into the parametrial areas and is believed to give an effective local radiation and to travel a considerable distance to lymph nodes draining the area. In this disease it is not used as a definitive treatment but as a part of a complete treatment program. It is too early to evaluate these new forms of gold injection treatment.

This isotope, gold^{198}, in colloidal form, has also been used by intravenous injection. When given by this route, it is taken out of the blood stream by the reticuloendothelial tissues of liver, spleen and bone marrow, and therefore does give radiation to a certain type of tissue. Possibly this could be considered a form of metabolic localization. It has proved of value in treatment of chronic myelocytic leukemia and to a less extent in chronic lymphocytic leukemia. In the latter disease, its disadvantage is that it usually gives inadequate therapy to lymph nodes. We have been interested in giving this isotope to patients who have metastatic carcinoma in the liver, since a very large proportion of the isotope is segregated in this organ. Our experience has been quite disappointing; in every instance the metastatic nodules have been too large to receive much effect from the beta radiation in the adjoining normal liver tissues, and there has been essentially no deposition at all of the gold within the metastatic nodules.

The same isotope, colloidal gold^{198}, has been used for injection into body cavities. We have had considerable experience in the treatment of patients with ascites or pleural effusion caused by malignant neoplasms involving the surfaces of these cavities. By injecting the radiogold directly into the cavity, it is often possible to control the effusion although the fundamental course of the neoplasm is apparently not greatly altered. It appears likely that this treatment or a similar treatment with some other isotope may replace x-ray therapy in the treatment of patients in whom the only aim is to control effusion. Attempts to treat lesions in other body cavities, such as the urinary bladder and paranasal sinuses, have been made, and there is some promise that isotopes will offer value in treating lesions in these areas. These studies are preliminary at the present time.

Radium is, of course, a naturally occurring isotope, and it has been used for many years in various types of intracavitary and interstitial applicators. More recently cobalt^{60} has been found to be of value when used in a similar manner. The cobalt has the advantage of being relatively inexpensive and of being more flexible and adaptable since it can be produced in many different types of applicators. It also has the advantage of more uniform type of radiation.

Radioactive phosphorus has been used by means of external application for the treatment of superficial malignant tumors. This isotope can be deposited on an individually constructed applicator which will fit the exact dimensions of the tumor, and by this method it is possible to obtain an intense but relatively non-penetrating radiation limited to the area covered by the applicator.

TELETHERAPY UNITS. Radioisotopes can be used in special shielded units which make it possible to direct the radiation into the body from an external source which is at a considerable distance from the skin. These units produce an effect similar to x-ray therapy. They are outgrowths of similar instruments devised for the use of radium. The artificially produced isotopes which are now available, however, seem much superior to radium for this purpose. The isotopes which may be suitable for this use are cobalt, cesium, europium, tantalum, and iridium. Of these, cobalt has had a good deal of study and cesium is now the subject of preliminary investigations.

The advantages of teletherapy units are multiple. The initial cost is low in comparison to the cost of comparable x-ray therapy units. However, the radioactive sources themselves, since they are the result of government supported research, are difficult to appraise in terms of what they would cost if privately produced. A second advantage is that the

maintenance of such a unit will presumably be a great deal simpler and cheaper than the maintenance of comparable x-ray therapy unit. Furthermore, the teletherapy instruments will be more flexible than comparable super-voltage x-ray. There are some differences in the quality of radiation, cobalt^{60} being free of the relatively non-penetrating radiation which is part of the spectrum produced by x-ray. Whether this difference in type of radiation will be of significant value clinically is yet to be determined. It appears that these teletherapy units will not revolutionize the accomplishments in treatment of carcinoma, but that they will bring a form of radiation comparable to supervoltage therapy into a price range which will greatly increase the availability of this treatment.

Summary

Radioisotopes, while failing to offer any ultimate solution to the cancer problem, are contributing significantly to cancer therapy. To be used effectively they must be properly integrated with existing forms of treatment. They serve to emphasize that the treatment of cancer is not simple or stereotyped and that for each individual case there should be a carefully planned program using whatever modalities seem most suitable.

Skin Injury by Fluorescent Bulb*

W. C. Dreese, M.D.

Halstead, Kansas

The danger of skin cuts by fluorescent bulbs is known from several reports,[1,2] and wide excision of the wound, when first seen, is recommended as the only effective prevention of chronic ulcers. The following case is reported because a laceration by fragments of a fluorescent bulb did not heal for two years. Wide excision of the draining lesion and of the healthy appearing surrounding tissue, with transplantation of a full skin flap, was necessary after two years of suffering.

Case Report

Miss L. B., age 24, entered the Hertzler Clinic on February 21, 1951, with the complaint of a recurrent draining ulcer on the right arm. In February, 1949, while changing a fluorescent tube in her desk lamp, she accidentally bumped the tube. It exploded and cut her on the flexor surface of her right lower arm. She paid no attention to the injury. However, four days later she found a small piece of glass in the wound. In a hospital, a superficial debridement of the wound was performed and the wound edges were approximated with adhesive tape.

During the following five weeks the wound drained intermittently, and the patient found seven or eight pieces of glass in all, in the wound and adherent to the dressings. The skin became painful, hard, and almost purple in color, and several draining sinus tracts had formed. Local dressings with various ointments were without effect. Therefore, in June, 1950, the inflamed area with the sinus tracts was resected and the defect closed with sutures. Two weeks after the operation, draining sinuses again became apparent; they closed for a few weeks only to break open again. A plaster of paris cast was applied to the right arm, to make any mechanical injuries to the lesion impossible. The wound became closed. However, in the fall of 1950, draining sinuses appeared once more.

On February 22, 1951, a radical excision of the lesion was performed. The defect was covered with a full thickness skin flap from the anterior abdominal wall. The postoperative course was uneventful, the transplant healed well, and there has been no recurrence of the draining lesions during the past year. At present the patient has full use of her right arm.

Pathologic Description of the Surgical Specimen

(C. A. Hellwig, M.D.)

Gross Pathology: The surgical specimen was an elliptical piece of skin, measuring 8 x 4.5 cm. The attached fat tissue was 16 mm. thick. On the surface was a healed scar, four cm. long, running oblique to the long axis of the specimen. There were two draining sinuses near the center of the scar; one had a diameter of two mm., the other of 1.5 mm. Both were surrounded with hard, retracted scar tissue. There were also three sinus openings near the margin, which measured between three and four mm. and were covered with a thin bluish layer of epidermis. On the lower surface, corresponding to these tracts, were hard, whitish, granular areas. On cross section most of the tissue consisted of fat. Surrounding the tracts the tissue was hard, whitish, and translucent. Section through the scar revealed a hard, yellow, necrotic appearing mass with irregular outline, measuring 2 x 3 mm. in diameter.

Microscopic Findings: The epidermis covering the surface was thick and appeared normal. In the corium and subcutaneous tissue many single and conglomerate tubercles were noticed. They con-

*Presented before the Harvey County Medical Society, September, 1951.

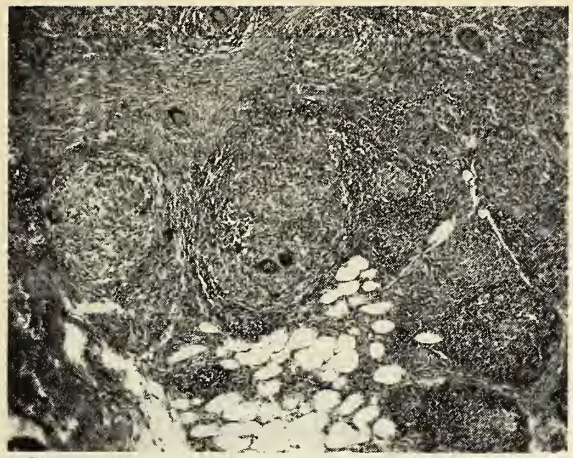


Figure 1. Microscopic section of skin lesion two years after injury. Active beryllium tubercles without caseation. Magn. x 120.

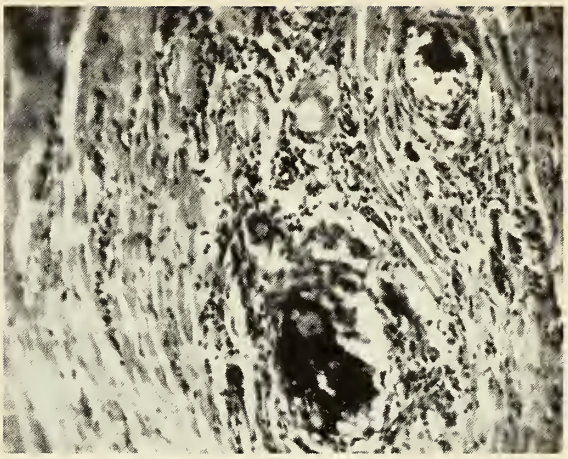


Figure 2. High power of two tubercles with giant cells containing conchoidal bodies. Magn. x 240.

sisted of epithelioid cells, lymphocytes and multinucleated giant cells of the Langhans' type. Some of the latter had dark stained inclusions which were not anisotropic in polarized light. No caseation was found in any of the tubercles. The surrounding fibrous tissue was diffusely infiltrated with histiocytes, lymphocytes, and fibroblasts.

The histological diagnosis was beryllium granuloma of the skin.

Spectographic Analysis: Formalin-fixed tissue was submitted to F. R. Dutra, M.D., of the Kettering Institute, Cincinnati, Ohio. His report follows: Microscopically the lesion certainly is typical for beryllium granuloma of the skin. Spectrographic analysis revealed 0.58 micrograms of beryllium per 100 gr. of tissue.

Discussion

The most interesting microscopic findings in our case were the active granulomatous lesions still present two years after the injury, in spite of two attempts to excise the wound. This can be explained only by the activity of macrophages which carry beryllium particles from the original lesion into the surrounding tissue, beryllium being insoluble in tissue fluid. There were characteristic inclusion bodies within the giant cells. The shape varied from a rounded body to a distorted, stretched-out, elongated one. These bodies stained black with hematoxylin and eosin.

Summary

A case of cutaneous granuloma injury following laceration by fluorescent light bulb which existed for two years is described. The lesion was accompanied with intermittent draining sinuses until wide excision of the involved area with skin transplantation effected a permanent cure. Histological and spectrographic findings were typical for beryllium granuloma.

The tenacious chronicity of beryllium granuloma is due to the fact that the implanted beryllium is carried by macrophages widely into the surrounding healthy tissue and produces draining sinuses which defy any conservative treatment. Active tubercle-like granulomas were still found two years after injury.

Skin lacerations by broken fluorescent bulbs require excision of the wound with a wide margin of apparently healthy skin.

Prevention of the cutaneous lesions can be accomplished only if all contaminated tissue is removed, preceding initial wound closure.

References

1. W. A. Oakley, R. N. Shapire, and G. W. Robertson. Granuloma of the Skin at Site of Injury by a Fluorescent Bulb. J.A.M.A. 139:1147-1148, 1949.

2. A. D. Nichol and R. Dominguez. Cutaneous Granuloma from Accidental Contamination with Beryllium Phosphors. J.A.M.A., 140:855-860, 1940.

CHANGE OF ADDRESS

Please notify the Kansas Medical Society of any changes in address.

Help keep the mailing list up to date.

The Complications and Diagnosis of Infectious Mononucleosis

H. J. Wisner, M.D.*

Wichita, Kansas

An attack of infectious mononucleosis in its so-called usual and ordinary form is considered benign and more or less self-limited. This concept may be true. However, in recent years there have been amassed many reviews and case reports attesting to the extremely varied manifestations of this disease, acute and chronic, mild to fatal, which should make us view each "ordinary" case of infectious mononucleosis with suspicion and concern.

The history and many recent large-series reviews of this disease, with their emphasis on the multiplicity of signs and symptoms, make for interesting reading. However, it is not the purpose of this paper to enter into a discussion of these features, but rather to again point out certain specific aspects that may make differential diagnosis more difficult and certain complications of possibly more serious consequences.

Because of the few fatalities in infectious mononucleosis the pathology has not been too well delineated. However, Custer and Smith[1] in their review of nine autopsies were able to make a definite clinico-pathological correlation in all their cases and to observe that "there are as many lesions of infectious mononucleosis as there are organs of the body, although the degree of involvement varies from case to case." In general, "the histologic changes revealed more or less generalized lesions resembling those of certain known virus diseases, notably perivascular aggregates of normal and abnormal lymphocytes." Despite the scantiness of the pathological literature, certainly this fine review begins to give us some clue as to the background of the many variations of this disease.

Blood

Extreme variations in the white blood count and differential may occur in the course of infectious mononucleosis. However, at some stage of the disease process a characteristic picture usually occurs which involves an increase in the mononuclear cells. These are of three types:[2] (1) small lymphocytes; (2) monocytes, both of these appear normally in the blood; and (3) large mononuclear leukocytes which are not normally observed in the blood. The "mononucleosis" is due mainly to the presence of these abnormal cells. These latter cells may have been divided into three types, according to the classification of Downey and McKinley.[3] However, their general description is as follows:[4] "They are variable in size, shape and staining. The nucleus, whatever its shape, is usually stained darkly and coarsely. The cytoplasm may be pale blue but is more often deeply basophilic and vacuolated, presenting a foamy appearance."

Most large series reports agree that at onset, in a high percentage of cases, there is a moderate leukocytosis. In mild cases there may be no change in the myeloid series, but in severe forms the white blood count may reach leukemoid levels with a high per cent of polymorphonuclear cells in the differential. In a resume of 556 cases seen by Wechsler et al[5] four per cent of the cases attained a count of 30,000 or over. This initial polynucleosis may be a possible source for diagnostic error since infectious mononucleosis is usually though of in relation to lymphocytosis. In addition, since the incidence of splenomegaly in published reports is about 50 per cent, the diagnosis of leukemia may be entertained. Although many of the leukocytes seen in infectious mononucleosis appear abnormal, very few of them contain nucleoli; also, the atypical lymphocytes do not show granules when stained by the peroxidase method. Thus they can be distinguished from cells of the granulocytic series and, to some extent from the monocytes.[2]

In 1950 Raftery and Thompson[6] made an extensive review of the literature and failed to find any report of the association of infectious mononucleosis with malignancy of the reticulo-endothelial system. They reported a case of infectious mononucleosis in a 21-year-old white female, followed in six weeks by subacute granulocytic leukemia. When first seen, this case showed the usual abnormal lymphocytes, typical of infectious mononucleosis, with a heterophile agglutination test of 1:448. A differential test by the Davidsohn technique was not reported.

In a recent excellent review of infectious mononucleosis by Tidy,[7] he states: "The blood changes should not cause difficulty in differentiation from leukemia when the patient is seen in the acute stage. In acute leukemia, the toxic symptoms are always severe. An occasional, but extremely difficult diagnosis, may be caused by the rare slowly progressive chronic lymphoid leukemia. In the earlier stages, there are periods of exacerbation with pyrexia and moderate glandular swelling. The lymphocytes for several years may be only at the upper limits of normal. They gradually creep up and

*Medical Department, Wichita Clinic.

the diagnosis, long suspected, slowly becomes confirmed. The diagnosis is difficult when it is asked for on a patient some months after a pyrexial attack with lymphocytosis considered to be infectious mononucleosis. Either lymphocytosis or glandular swelling may persist for several months after infectious mononucleosis, but if both features are present for six months the diagnosis must be considered in doubt, unless it has been fully established. I have watched three such cases, originally diagnosed doubtfully as infectious mononucleosis, gradually develop fatal lymphoid leukemia over three to ten years."

Shortly following the onset of illness there is usually a reduction in the absolute neutrophil count, and since these patients are not often seen before the fourth or fifth day of illness, a leukopenia or granulocytopenia with an associated increase of the mononuclear cells, as described above, may be the presenting blood picture. In Milne's[4] experience with 141 cases the average per cent of polys on admission was 39, later falling to 20-25 per cent. He reports one case of four per cent neutrophil count. In such unusual cases of extreme granulocytopenia, the diagnosis of agranulocytosis may be suggested. The mononuclear cells may not reach their peak until the second or third week, and the abnormal "leukocytoid" lymphocytes may average from 10 to above 50 per cent.[5]

In regard to bone marrow studies the prevailing opinion is as described by Wintrobe:[2] "The sternal puncture is chiefly of value from a negative standpoint in the sense that findings characteristic of leukemia are absent." With this in mind Hovde and Sundberg[8] recently made bone marrow studies in 23 cases of infectious mononucleosis, eight cases of brucellosis, two of sarcoidosis, two of tuberculosis, 15 of chronic lymphatic leukemia, and 19 of acute and subacute lymphatic leukemia. Their findings are interesting in that they describe two changes in the bone marrow of infectious mononucleosis patients which they consider of value in differential diagnosis: lymphocytosis with the typical "leukocytoid" lymphocytes of infectious mononucleosis in 70 per cent of cases and granulomatous lesions in 48 per cent of cases. The degree of lymphocytosis was shown to be less than that of lymphatic leukemia and was not found in brucellosis, sarcoidosis, or tuberculosis. The granulomatous lesions, when present, were not always easily distinguishable from those of brucellosi, sarcoidosis, and tuberculosis.

Anemia, thrombocytopenia, purpura and hemorrhagic manifestations have been considered as rare complications of this disease. Indeed, as early as 1922, Longscope[9] declared that bleeding and purpura did not occur in infectious mononucleosis and could be used as differential diagnosis from leukemia. The infrequency of anemia is epitomized by the reports of Read and Helwig[10] and Wechsler et al.[5] The former authors reported only six cases of anemia in 300 cases and the latter group found no anemia in a study of 556 cases.

However, Bernstein in his excellent monograph in 1940,[11] stated that the presence or absence of bleeding cannot be used as a differential point from leukemia. Since then numerous reports have been made of infectious mononucleosis complicated by acute hemolytic anemia and/or thrombocytopenic purpura, associated in general with complete recovery on subsidence of the infection.[10,12,13,14,15,16,17,18,19,20,21,22]

A perusal of these reports reveals thrombocytopenia ranging from less than 10,000 to 100,000. In addition, there were included hemorrhagic manifestations such as petechiae or ecchymoses involving conjunctiva, tongue, gums, buccal mucosa, and skin. Nosebleeds, hemoptysis, hematemesis, tarry stools, hematuris, and menorrhagia are also reported. Bleeding times were generally increased and coagulation time normal. The hemoglobin has been reported as low as 5.5 gms. One such case study[19] reported a positive Coombs test. Two of these reports, that of Dameshek and Grossi[12] in 1946 and that of Wilson et al[21] in 1949, involved cases of continued bleeding and anemia so severe that splenectomy was performed. In each case operation was successful and recovery complete. Dameshek and Grossi suggested that "in the presence of well defined splenomegaly in infectious mononucleosis a state of hypersplenism might conceivably result with the production of megakaryocyte inhibition and thus thrombocytopenia." This explanation and concept seems to apply well to many of these cases. However, Read and Helwig[10] hypothesize a possible depression of bone marrow activity from an infectious granulomatous process.

Spleen

In regard to splenic enlargement, Stevens, Bayrd and Heck[23] in studying 210 sporadic cases of infectious mononucleosis found that in 67 per cent of those cases in which it was present the enlargement was encountered from the 10th to 21st days of the illness. Enlargement was still present four months after the acute stage of the disease had subsided in two cases and in one case still palpable at eight months.

Of the 15 reported deaths in infectious mononucleosis, eight have been due to rupture of the spleen.[24] From a review of their autopsy material, Custer and Smith[25] interpreted this complication as resulting from a rapid splenic enlargement, stretching of the capsule and thinning of trabeculae. The exciting cause is often trivial, as exemplified by possibly the first reported case in 1941.[26] This was

apparently a spontaneous rupture in a 23-year-old white male, who was operated with recovery.

On the basis of their studies, Custer and Smith made these three additional points, all possibly of some clinical import: (1) palpation of the spleen in suspected cases should be omitted; (2) splenic rupture is unlikely to occur during the first two weeks of the disease; (3) rupture of the spleen is followed by reversal of the differential formula of the leukocytes with the neutrophils predominating, and this may prove confusing.

Jaundice and Hepatitis

Jaundice was first recognized as a complication of infectious mononucleosis by Mackey and Wakefield[27] in 1926. In 1944 three reports estimated that from 21 to 35 cases of jaundice in infectious mononucleosis had been reported. Since that time the total has risen to approximately 100 cases[28] and the incidence of jaundice in different series has ranged from zero to 13 per cent. In Wechsler's[5] series of 556 cases there were 34 cases, or six per cent, varying in duration from 11 days to 48 days, with the highest icteric index recorded at 100.

As late as 1942 jaundice was interpreted as evidence of common bile duct blockage by enlarged nodes. However, in that year Kilham and Steigman[29] demonstrated focal acute hepatitis by punch biopsy in a deeply icteric patient and suggested that hepatocellular damage might be the cause of clinical jaundice in infectious mononucleosis. This concept is now well established on the basis of autopsy, biopsy, chemical and clinical observations.

In a pilot study of considerable import, by Cohn and Lidman[30] in 1946, it was shown that hepatic dysfunction occurs even in non-jaundiced patients. The impetus for this investigation was the increasing evidence of similar symptomatology between infectious mononucleosis and infectious hepatitis. Fifteen successive cases of infectious mononucleosis were studied and although the serum bilirubin was normal, every case demonstrated impairment of liver function by more than one test. All cases exhibited bilirubinuria, thymol turbidity values ranged from 5.1 to 14.3, B.S.P. retention varied from 11 to 43 per cent, electrophoretic analysis of sera showed a slight decrease in concentration of serum albumin and greater than normal figures for alpha and beta globulins and a rather marked increase in gamma globulin. All these findings are comparable with infectious hepatitis.

Confirmatory reports soon followed. In 1947, DeMarsh and Alt[31] studied 19 cases without jaundice using B.S.P., cephalin flocculation, and icteric index. Some degree of hepatic damage was present in all cases. Liver tenderness was present in seven per cent of their cases, usually transient, but persistent for four weeks in one case. Apparently, there was some rough correlation between the severity of symptoms and the degree of hepatitis, but no correlation to the height of the heterophile antibody titer.

A. S. Evans also reported 19 cases without jaundice, in 1948.[32] The cephalin flocculation test was found to be abnormal (two plus or more in 24 hours) in 95 per cent, and in two instances was abnormal before the heterophile antibody titer had reached a significant level. The thymol turbidity test was elevated in 68 per cent, ranging from 4 to 10 units. This change usually appeared later and was more transient than in the cephalin flocculation. The alkaline phosphatase showed values from 4 to 11.5 Bodansky units in 43 per cent. In this particular report a control study was made using upper respiratory infection cases in which infectious mononucleosis was ruled out, but severe enough the patients had to be hospitalized. The following results were obtained: cephalin flocculation negative in 22; thymol turbidity, one positive in 13. It was concluded that the flocculation tests were of value in differentiation of hepatitis without jaundice from uncomplicated U.R.I.

Jordan and Albright[33] made similar observations on 24 patients with infectious mononucleosis, two of whom were jaundiced. In their series the maximum number of changes in hepatic function tests was observed during the second and third weeks of the disease, and flocculation disturbances persisted more than two months in a fourth of the patients.

Electrophoretic studies of serum proteins in seven cases of infectious mononucleosis by Sterling[34] in 1949 have confirmed Cohn and Lidman's original observations in this regard.

The largest series of cases studied so far, from the standpoint of liver function, is that of Bennet et al.[35] One or more abnormal tests were found in 83 of 90 patients. They suggest that the B.S.P., cephalin flocculation, thymol turbidity, and quantitative Van den Bergh are best for screening purposes. The cholesterol and cholesterol esters were found abnormal in only two of 13 (16 per cent) patients. In a follow-up study, seven of these patients were found to have evidence of chronicity or recurrence. One was still symptomatic at the end of two years, a second was symptomatic but still had 11 per cent B.S.P. retention at the end of two years, and a third was mildly symptomatic with abnormal reactions at 31 months. Four other patients showed abnormal reactions at seven to nine months.

In the presence of hepatic dysfunction, both with and without jaundice, the necessity for differentiation from infectious hepatitis becomes obvious and

is stressed in most of these reports. Both infectious mononucleosis and infectious hepatitis may present symptoms of anorexia, nausea, asthenia, lassitude, easy fatiguability, and diminished exercise tolerance.[30] Infectious hepatitis may present adenopathy, splenomegaly (10 to 15 per cent of cases) and leukopenia with a relative lymphocytosis and atypical lymphocytes in the blood. Hepatomegaly is usually reported in 10 to 15 per cent of cases of infectious mononucleosis. This overlap of similarities extends to the pathological findings as well. Custer and Smith[1] state that "the liver lesion is essentially a periportal hepatitis. It is hardly distinguishable from liver changes in the milder cases of epidemic hepatitis as observed at biopsy."

The discrepancy betwen signs and symptoms and the results of the hepatic function test is epitomized in the report of Kass and Robbins,[24] concerning a case of infectious mononucleosis with minimal clinical manifestations and death by rupture of the spleen. At autopsy, aside from the splenic pathology, a severe hepatitis was encountered.

Granted that the adenopathy, splenomegaly, and blood picture are more distinctive in infectious mononucleosis, nevertheless it is conceivable that the differentiation in a particular case might rest mainly on the results of the heterophile antibody test, and since in the occasional case this test is negative, occasional cases of these two diseases may be indistinguishable.

Such a situation is exemplified by the case report of H. L. Abrams.[28] This case involved a 30-year-old male, visibly icteric for 11 weeks, with splenomegaly, hepatomegaly, liver function tests indicating hepatitis (including a peak serum bilirubin of 27.5 mgm. per cent), no significant adenopathy, leukopenia with relative lymphocytosis. The heterophile antibody test became positive (1:896) only after eight and a half weeks of illness. Abrams summarized as follows: "This case resembled a severe case of infectious hepatitis in all respects except the peripheral smear. The negative Paul-Bunnell tests during the first eight weeks of the illness might well have been accepted as evidence that this was, indeed, a case of infectious hepatitis, especially in view of the frequent occurrence of lymphocytosis and atypical lymphocytes in infectious hepatitis."

In view of this case and the above data, perhaps many cases heretofore labelled as infectious hepatitis may have actually been infectious mononucleosis.

On the basis of these many reports indicating a high incidence of hepatic dysfunction in cases of infectious mononucleosis, both with and without jaundice, many authors are now urging that all cases be treated as though they have an associated infectious hepatitis. If this therapeutic concept is followed, the differentiation of the two diseases may seem academic. However, since to date there is no data with which to evaluate the late complications of the hepatitis of infectious mononucleosis and since the long-term prognosis of the two diseases, infectious mononucleosis and infectious hepatitis, may be entirely dissimilar, the importance of repeated heterophile antibody tests in questionable cases is emphasized.

Isaacs,[36] from a study of 206 cases of infectious mononucleosis, found 53 cases with persistent asthenic symptoms and atypical cells in the blood stream from three months to several years and coined the term "chronic infectious mononucleosis." Unfortunately, no liver function studies were reported from this group of cases.

Kass and Robbins[24] in their pathological review state, "The conclusion seems warranted that despite the intensity of the anatomic and clinical changes the hepatic lesion in infectious mononucleosis is more benign than its counterpart in infectious hepatitis. One reason for such relative benignity may be that there is little tendency toward necrosis in the liver in infectious mononucleosis and therefore less likelihood of scar formation."

However, recently, Leibowitz and Brody[37] have reported a case which they believe the first documented instance of cirrhosis of the liver following infectious mononucleosis. The diagnosis of cirrhosis was by biopsy; the diagnosis of infectious mononucleosis was based on serological tests, a rising heterophile antibody titer to 1:800 on the 60th day of illness with a subsequent fall to normal. A Davidsohn "differential test" was not done. This patient was first seen one month after onset of illness, and no atypical lymphocytes were noted. They exclude infectious hepatitis on the basis that such a high heterophile antibody titer has never been seen in that disease.[38] There was a history of poor diet in this case. Considering our limited etiological knowledge in cirrhosis, this may have been a primary factor.

Lung

Involvement of the respiratory tract with both clinical and x-ray findings similar to atypical pneumonia has been described not infrequently. Wechsler et al,[5] found 14 cases out of 556 with x-ray changes of this type. Of these 14 cases the symptoms were those usually found in atypical pneumonia as manifested by the characteristic cough, the asthmatic wheezing, the disparity of physical signs and the failure to respond to sulfadiazine.

Recently two separate reports have been made of the roentgenological aspects of infectious mononucleosis.[39,40] Aside from the splenic and hepatic enlargement, which may be easily distinguished by x-ray in many cases, the main changes on chest x-ray recorded enlargement of the hilar and medias-

tinal lymph nodes, which must be distinguished from that associated with other diseases; and pulmonary parenchymal infiltration often distinguishable from atypical pneumonia.

One of these reports[39] was based on 75 patients with infectious mononucleosis. Of this group, 43 had chest x-rays and seven showed one or both of the above abnormalities. It noted that in none of the cases was pneumonitis suspected clinically; it was an incidental finding on the chest x-ray. This suggests, in the light of the experience of Wechsler and his group, that symptoms may or may not be present. The duration of findings on chest x-ray were varied from one week to three months.

That diagnostic difficulties from a roentgenological viewpoint are encountered is suggested by the case report of J.S. Herschboeck.[41] In this case the film taken the seventh day after admission indicated bilateral bronchopneumonia. Five days later the roentgenologist suggested miliary tuberculosis as the probable diagnosis. Three weeks later the lung cleared completely.

As a general rule, lymphadenopathy and splenomegaly are of markedly low incidence in atypical pneumonia.[42,43] In addition, the incidence of significant (1:128) titers of cold hemagglutinins has been reported as about 54 per cent.[44] These factors should aid in the clinical and laboratory differential diagnosis of these two diseases. However, a few cases of infectious mononucleosis with high titers for cold hemagglutinins have been reported.[45] In 1950, Evans[46] did 89 cold hemagglutination titers on 56 patients with infectious mononucleosis. The highest titer was 1:32 (10 per cent) and the great majority (84 per cent) were under 1:8. However, this author makes a plea that in those diseases in which the serum may contain cold hemagglutinins in high titer, a determination for the coexistence of a heterophile antibody should be carried out by some method not requiring exposure to cold temperatures.

Heart

Cardiac signs and symptoms are uncommon, but a few cases have been reported here and there. Wechsler et al[5] found in their series one case, a Negro, age 24, with typical infectious mononucleosis, substernal pain, bradycardia, sinus arrhythmia, P-R interval of 0.24 to 0.44 seconds, a systolic murmur and moderate cardiac enlargement. Because of this, electrocardiograms were taken on 223 patients. Of this group, 53 patients (or 23 per cent) showed abnormal tracings in some respect. Cardiac enlargement occurred in only three. There were no cardiac symptoms except an occasional complaint of sharp precordial pains.

In four cases of Graybiel and Evans,[47] the T-waves were lowered or inverted in all leads, suggesting pericardial involvement with gradual return to normal during convalescences. Logue and Hansen[48] have recorded a case of first degree heart block with prolonged P-R interval. In the autopsy cases studied by Custer and Smith,[1] pericarditis was not demonstrated. However, lesions were found in the heart muscle in six cases. Extensive residual areas of myocarditis after 30 days were found in one.

Central Nervous System

Apparently the incidence of nervous system involvement in infectious mononucleosis is quite small. In a review of 141 cases seen between 1935 and 1945, Milne[4] states that in no case was meningitis suspected, and no lumbar puncture was done. However, some of the case reports in regard to this complication are most dramatic and arresting. Recently Bernstein and Wolff[49] made an excellent review of this particular facet and found that between 1931 and 1947 only 28 reports had been submitted to the literature; these included 46 patients, 34 of whom they were willing to accept as bona fide cases of infectious mononucleosis.

The disease process may involve the brain, meninges, spinal cord, cranial and peripheral nerves, in the form of meningitis, encephalitis, meningoencephalitis, meningo-encephalitis with acute polyneuritis, and peripheral neuropathy. Apparently the combinations and sequence of involvement may be extremely varied. Correlation with the onset or severity of the ordinary manifestations of infectious mononucleosis is not constant;[50] neurologic and glandular (or febrile) symptoms may be simultaneous or may precede one another. In those cases where symptoms of central nervous system involvement precede, the diagnosis could easily be missed unless it were thought of and considered in the differential. In addition, Tidy has stated that when the neurologic system involvement is severe, the changes in the blood picture tend to be delayed.

The spinal fluid changes recorded have consisted mainly of moderate increase in cells and/or protein. The cells are mainly lymphocytes. Spinal fluid pressure is occasionally increased; sugar and chlorides are normal; changes may persist beyond the time of clinical recovery. Abnormalities of the spinal fluid may occur without mental, motor or sensory changes.[51]

The great majority of reports emphasize the negativity of heterophile antibody titers in spinal fluid. However, Silverstein et al[52] have reported demonstration of spinal fluid heterophile antibody in the same absorption pattern as the blood, by use of certain modifications of techniques.

The overall prognosis in these cases with central nervous system complications is good. Bernstein and Wolff[49] report complete recovery in 85 per cent

of cases in periods ranging from a few days to several months.

A few of the specific clinical manifestations mentioned in the literature are worthy of reviewing. Hubler et al[53] have reported a case manifested by stupor and convulsions. One patient with encephalomyelitis had considerable muscle weakness and sensory changes and signs of cerebellar damage many months after apparent recovery from the acute process.[54]

In 1947, Ashworth and Motto[55] reported infectious mononucleosis in a 19-year-old soldier who had three plus diopter papilledema, noting this was the first case recorded without accompanying meningitis or encephalitis. J. J. Piel et al[56] presented a similar case, manifested by blurring of vision and pain on motion of the eyes, and were of the opinion that the bilateral papilledema in their patient represented a primary optic neuritis rather than increased intracranial pressure.

H. Tidy has expounded the similarities between infectious mononucleosis and benign lymphocytic meningitis.[7,50] He states that "from a study of available publications and from personal experience, I can find no points of difference between neurological symptoms of benign lymphocytic meningitis and those of glandular fever or between the changes in the central spinal fluid in these conditions . . . in published records of cases of benign lymphocytic meningitis (search not exhaustive) I failed to find a single case in which glandular fever or infectious mononucleosis is even mentioned, much less excluded." He submits that unless this differential diagnosis is made, future cases of benign lymphocytic meningitis cannot be accepted as an entity.

In a few instances there has been striking albumino-cytologic dissociation. In the two cases with which Ricker et al[57] were directly concerned, flaccid paralysis with absent deep tendon reflexes was noted. One of their patients suffered from numbness of the extremities. Death was from respiratory paralysis. The authors expressed the belief that their cases represented an association of infectious mononucleosis and the Guillain-Barre syndrome and presented histologic evidence as support.

N. E. Creaturo[58] reported a case of infectious mononucleosis simulating the Guillain-Barre syndrome, with recovery. This case developed fairly rapidly ascending type paralysis with facial diplegia and paralysis of the right side of the palate and distinct nasal twang, pain in both legs and tingling sensation in hands and feet. The spinal fluid total proteins were 168 and cells negative. Other similar reports are in the literature.[59,60]

Cases of isolated peripheral nerve involvement are rare. One case[61] was without other neurologic disturbance and came on in the third week of illness and ended with complete recovery in three months; in the second case palsy occurred on the fifth day of illness and persisted for one year. This latter patient had normal spinal fluid. One case of Median nerve palsy has been reported.[17]

In regard to central nervous system infectious mononucleosis, it may be concluded that: because of the protean manifestations and the delayed development of a positive heterophile reaction or the lack of its presense in the serum, abnormal spinal fluid findings may be misleading: all cases of "idiopathic" meningitis, encephalitis, or polyneuritis warrant repeated heterophile antibody agglutinations for diagnostic purposes; there may be no means of establishing the diagnosis for several weeks.

Heterophile Antibody

From the foregoing and because of the multiplicity of symptoms not mentioned, it is apparent possible errors in diagnosis are numerous. However, even in those cases where the index of suspicion is high, the diagnosis of infectious mononucleosis cannot be made by clinical history and examination alone.

Stevens, Bayrd and Heck,[23] in their recent survey of 210 sporadic cases, found that 13 different diagnoses were made on admission, of which the diagnosis of infectious mononucleosis was suggested in only 7.1 per cent. The report of Davidsohn et al[62] further illuminates diagnostic difficulties. One hundred six patients with infectious mononucleosis were seen and in 63, prior to the availability of hematologic and serologic findings, 26 diseases other than infectious mononucleosis were diagnosed.

The importance of blood smear studies has been mentioned and is emphasized. This will undoubtedly solve the problem in a high per cent of cases, especially when combined with the heterophile antibody test. However, there will remain a small group of cases in which the diagnosis will rest heavily on the results of the heterophile antibody reaction alone. These cases may be atypical in onset, atypical in their course, or present differential diagnostic problems in which the blood changes are not entirely satisfactory for purposes of classification.[63] From this standpoint it is well to know something of the limitations and possibilities as regards this test.

In 1944, Kaufman[64] stated that "the percentage of positive heterophile antibody tests varies with all series reported according to (1) figure which the author considers necessary for this test to be called positive, (2) the frequency of the blood sampling in an individual case, and (3) most important, the number of cases of infectious mononucleosis which the author refused to recognize and include as such because they have a negative heterophile antibody reaction even though they are indistinguishable from

infectious mononucleosis clinically and hematologically . . . on this basis reports vary from 40 per cent to 100 per cent positive."

That a negative test does not rule out the disease is now fairly well accepted. Conversely, a positive test, if in high titer, is strong evidence in favor of infectious mononucleosis; but the borderline or only moderately elevated titer does not definitely establish the diagnosis.

In the years since 1932 when Paul and Bunnell[65] first noted a high heterophile antibody titer in infectious mononucleosis, most authorities have gradually recognized 1:56 (Davidsohn technique) or a rising titer as positive. On this basis it has been noted[64] that positive reactions may occur as early as the second or third day of illness and as late as six months, and that the average is between the sixth and the 26th day; it may remain positive for three to 11 months, averaging two to four months; the titer bears no relationship to the severity of the disease; high titers often occur following horse serum infections.

However, in recent years there has crept into the literature indication that titers up to 1:224 and even higher, in rare cases, may occur in various diseases other than infectious mononucleosis. Schultz[66] found titers of 1:56 or higher in 57 cases, which included Hodgkin's disease, monocytic leukemia, several sarcomas, and tuberculosis. It is noted that a high per cent of these titers were not above 1:112 (and that the Davidsohn differential test was not used).

One case of monocytic leukemia with a heterophile antibody reaction of 1:16,384[67] has been reported. S. Bornstein[68] has reported a case of bacterial infection with B. coli in which a heterophile antibody reaction of 1:1600 was obtained. (However, this antibody was the Forssman type.)

That the test does have a high degree of specificity was shown by the study of Goldman et al.[69] Eight hundred seventeen heterophile agglutination tests on 556 patients were done; these included 43 cases of infectious mononucleosis, 55 cases of miscellaneous lymphomatous diseases, and 458 unspecified cases. Of the unspecified cases only 10 per cent had titers of 1:80 or above; of the 55 lymphomatous cases four patients had tests in the borderline range, 1:80 and 1:60; of the 43 infectious mononucleosis cases, 98 per cent had titers of 1:80 or above and 81 per cent (35 patients) had titers of 1:300 or higher.

However, perhaps because of these occasional cases not found to be infectious mononucleosis, but with titers in what has heretofore been considered the low diagnostic range, Davidsohn et al[62] have recently suggested that a titer of 1:224 be considered "positive." They add that "if the titer is less than 1:224 in the presence of clinical and hematologic findings suggestive of infectious mononucleosis, or if the titer is 1:224 or higher in the absence of clinical and hematological findings suggestive of infectious mononucleosis, or if the patient has a history of a recent horse serum injection, the test should be checked by the differential test."

It will be remembered that according to present-day concepts there are three types of sheep cell agglutinins:[64] (1) those in normal serum (or sera of persons with diseases other than infectious mononucleosis or horse serum sensitization) absorbed by guinea pig kidney but not by beef erythrocytes; (2) those in patients with infectious mononucleosis absorbed by beef erythrocytes but not by guinea pig kidney; (3) those in the serum of individuals treated with horse serum, absorbed by both guinea pig kidney and beef erythrocytes.

Davidsohn et al[62] estimate that by use of this test in questionable cases serologic accuracy will range from 80 to 85 per cent; that if all or almost all (more than 90 per cent) of the sheep cell agglutinin is removed by guinea pig kidney, infectious mononucleosis is excluded; that failure to use the differential test has been responsible for much of the discrepancy of reported incidence of positive titers and confusion regarding the significance of the heterophile antibody test.

It is concluded that the differential test should be used on all atypical cases diagnosed as infectious mononucleosis, in the presense of hepatitis, "idiopathic" central nervous system or peripheral nerve lesions, or where the heterophile antibody titer is positive but the diagnosis is in doubt.

Conclusion

Experience, through the years, has led us to think of infectious mononucleosis as the "medical student's disease," transitory in character and of no great significance except for its nuisance value, either in the acute stage or from the standpoint of possible long-term illness. So-called ordinary typical cases probably fit this concept, and many cases mistakenly diagnosed probably settle themselves without important consequences. However, there is growing evidence that infectious mononucleosis is a protean disease of considerable magnitude; that it also is an "imitator" disease; that serious complications can occur in the acute stage and that the last word has not been written in regard to possible chronic effects; that even so-called "ordinary cases" should be viewed with suspicion and observed and studied for longer periods. The etiology is still unknown but, clinically at least, there appears to be some relationship to many established and so-called virus diseases.

References

1. Custer, R. P., and Smith, E. B.: The Pathology of Infectious Mononucleosis, Blood., 3: 823, 1948.

2. Wintrobe, M. W.: Clinical Hematology, Lea and Febiger, Philadelphia, Pa., 1946.
3. Downey, H., and McKinley, C. A.: Acute Lymphadenosis Compared With Acute Lymphatic Leukemia, Arch. Int. Med. 32: 82, 1923.
4. Milne, J.: Infectious Mononucleosis, New Eng. J. Med., 233: 24, 727, 1945.
5. Wechsler, H. F., Rosenbloom, A. H., and Sills, C. T.: Infectious Mononucleosis: Report of an Epidemic in an Army Post, Ann. Int. Med., 25: 113 and 236, 1946.
6. Raftery, A., and Thompson, O. H.: Subacute Granulocytic Leukemia: Report of a Case Following Infectious Mononucleosis. U. S. Armed Forces, M. J. 1: 413, 1950.
7. Tidy, H.: Infectious Mononucleosis, Blood., 3:8, 823, 1948.
8. Hovde, M. S., and Sundberg, R. D.: Granulomatous Lesions in the Bone Marrow in Infectious Mononucleosis, Blood, 5: 3, 209, 1950.
9. Longscope, W. T.: Infectious Mononucleosis (Glandular Fever) with a Report of Ten Cases, Am. J. Med. Sci., 164: 781, 1922.
10. Read, J. T., and Helwig, F. C.: Infectious Mononucleosis: An Analysis of 300 cases with Three Characterized by Rare Hematological Features, Arch. Int. Med., 75: 376, 1945.
11. Bernstein, A.: Infectious Mononucleosis, Medicine, 19: 1, 85, 1940.
12. Dameshek, W., and Grossi, M. A.: Infectious Lymphadenosis ("Mononucleosis") and Thrombocytopenic Purpura; Recovery After Splenectomy, Blood, XX 1: 339, 1946.
13. Goldbloom, A. A., and Leiberson, A.: A Case of Infectious Mononucleosis with Jaundice and Thrombocytopenic Purpura, Am. J. Med., 5: 912, 1948.
14. Lloyd, P. C.: Acute Thrombocytopenic Purpura in Infectious Mononucleosis, Am. J. Med. Sci., 207: 620, 1944.
15. Magner, W. C., and Brooks, E. F.: Infectious Mononucleosis with Acute Thrombopenic Purpura, Canada. M. A. J., 47: 35, 1947.
16. Tager, M., and Klinghoffer, K. A.: Acute Thrombocytopenic Purpura Hemorrhagica with Lymphocytosis; Report of a Case, Ann. Int. Med., 18: 56, 1943.
17. Wallterstein, R. S., and Madison, L.: Infectious Mononucleosis: With Hepatic Dysfunction, Thrombocytopenic Purpura, and Isolated Peripheral Nerve Palsy, Am. Pract. and Dig. of Therapy, 1: 6, 624, 1950.
18. Thompson, W. T., Jr., and Pitt, C.: Frank Hematuria as a Manifestation of Infectious Mononucleosis, Ann. Int. Med., 33: 5, 1274, 1950.
19. Sawitsky, A., Papps, J. P., and Weiner, L. M.: The Demonstration of Antibody in Acute Hemolytic Anemia Complicating Infectious Mononucleosis, Am. J. Med., 8: 260, 1950.
20. Appelman, D. H., and Morrison, M. M.: Concomitant Infectious Mononucleosis and Hemolytic Icterus, Blood, 4: 186, 1949.
21. Wilson, S. J., Ward, C. E., and Gray, L. W.: Infectious Lymphadenosis (Mononucleosis) and Hemolytic Anemia in a Negro, Blood, 4: 189, 1949.
22. Small, C. S., and Hadley, G. G.: Acute Hemolytic Anemia Complicating Infectious Mononucleosis, Am. J. Clin. Path., 20: 11, 1056, 1950.
23. Stevens, J. E., Bayrd, E. D., and Heck, F. J.: Infectious Mononucleosis: A Study of 210 Sporadic Cases, Am. J. Med., 10: 2, 202, 1951.
24. Kass, E. H., and Robbins, S. L.: Severe Hepatitis in Infectious Mononucleosis, Report of a Case with Minimal Clinical Manifestations and Death Due to Rupture of Spleen, Arch. of Path., 50: 5, 644, 1950.
25. Smith, E. B., and Custer, R. P.: Rupture of the Spleen in Infectious Mononucleosis. A Clinicopathological Report of Seven Cases, Blood, 1: 317, 1946.
26. King, R. B.: Spontaneous Rupture of the Spleen in Infectious Mononucleosis, New Eng. J. Med., 224: 1058, 1941.
27. Mackey, R. D., and Wakefield, E. G.: The Occurrence of Abnormal Lymphocytes in the Blood of a Patient With Jaundice (Infectious Mononucleosis-Glandular Fever), Ann. Clin. Med., 4: 727, 1926.
28. Abrams, H. L.: Infectious Mononucleosis with Intense Jaundice of Long Duration, New Engl. J. Med., 238: 298, 1948.
29. Kilham, J., and Steigman, A. J.: Infectious Mononculeosis, Lancet, 2: 452, 1942.
30. Cohn, C., and Lidman, B. I.: Hepatitis Without Jaundice in Infectious Mononucleosis, J. Clin. Invest., 25: 145, 1946.
31. DeMarsh, Q. B., and Alt, H. L.: Hepatitis Without Jaundice in Infectious Mononucleosis, Arch. Int. Med., 80: 257, 1947.
32. Evans, A. S.: Liver Involvement in Infectious Mononucleosis, J. Clin. Invest. 27: 106, 1948.
33. Jordan, W. S., and Albright, R. W.: Liver Function Tests in Infectious Mononucleosis, J. Lab. and Clin. Med., 35: 688, 1950.
34. Sterling, K.: Serum Proteins in Mononucleosis; Electrophoretic Studies, J. Clin. Invest., 28: 1057, Sept. (pt. 2) 1949.
35. Bennett, H. D., Frankel, J. L., Bedinger, P., and Baker, L. A.: Infectious Mononucleosis With Hepatitis, Arch. Int. Med., 86: 3, 391, 1950.
36. Isaacs, R.: Chronic Infectious Mononucleosis, Blood, 3: 858, 1948.
37. Leibowitz, S., and Brody, H.: Cirrhosis of the Liver Following Infectious Hepatitis, Am. J. Med., 8: 675, 1950.
38. Eaton, M. D., Murphy, W. D., and Hanford, V. L.: Hererogenetic Antibodies in Acute Hepatitis, J. Exper. Med. 79: 539, 1944.
39. McCort, J. J.: Infectious Mononucleosis: With Special Reference to Roentgenological Manifestations, Am. J. Roent. and Rad. Therapy, 62: 645, 1949.
40. Arendt, J.: The Roentgenological Aspects of Infectious Mononucleosis, Am. J. Roent. and Rad. Therapy, 64: 6, 1950.
41. Herschboeck, J. S.: Unusual Manifestations of Infectious Mononucleosis, Marquette Med. Rev., 13: 45, 1948.
42. Owen, C. A.: Primary Atypical Pneumonia: An Analysis of 738 Cases Occurring During 1942 at Scott Field, Ill., Arch. Int. Med., 73: 217, 1944.
43. Young, L. E., Storey, M., and Redmond, A. J.: Clinical and Epidemiological Features of an Outbreak of Primary Atypical Pneumonia of Unknown Etiology Among Hospital and Medical School Personnel, Am. J. Med. Sci., 206: 756, 1943.
44. Young, L. E.: Clinical Significance of Cold Hemagglutinins, Am. J. Med. Sci., 211: 1, 23, 1946.
45. Spingain, C. L., and Jones, J. P.: Cold Hemagglutination in Primary Atypical Pneumonia and Other Common Infections, Arch. Int. Med., 76: 75, 1945.
46. Evans, A. S.: Tests for Cold Hemagglutinins, "Gamma Globulin," and Weil Felix Reaction in Infectious Mononucleosis, Am. J. Clin. Path., 20: 278, 1950.
47. Evans, W. F., and Graybiel, A.: Electrocardiographic Evidence of Cardiac Complications in Infectious Mononucleosis, Am. J. Med. Sci., 211: 220, 1947.
48. Logue, R. B., and Hansen, J. F.: Heart Block: A Study of 100 Cases With Prolonged P-R Interval, Am. J. Med. Sci., 207: 765, 1944.
49. Bernstein, T. C., and Wolff, H. G.: Involvement of Central Nervous System in Infectious Mononucleosis, Ann. Int. Med., 33: 5, 1120, 1950.
50. Tidy, H.: Relationship of Benign Lymphocytic Meningitis and Glandular Fever, Lancet, 2: 819, 1946.
51. Lyons, H. A., and Harrison, J. G.: The Absence of the Heterophile Reaction in the Spinal Fluid in Infectious Mononucleosis, Blood, 4: 734, 1949.
52. Silverstein, J. K., Bernstein, T. C., and Stern, T.: Demonstration of Heterophile Antibodies in the Cerebrospinal Fluid from Patients With Infectious Mononucleosis, J. Lab. and Clin. Med., 33: 1204, 1948.
53. Hubler, W. L., Bailey, A. A., Campbell, D. C., and Mathieson, D. R.: Infectious Mononucleosis with Predominantly Neurologic Manifestations: Report of a Case, Proc. Staff Meetings Mayo Clinic, 26: 17, 313, 1951.
54. Slade, J. R.: Involvement of the Central Nervous System in Infectious Mononucleosis, New Engl. J. Med., 234: 753, 1946.
55. Ashworth, J., and Motto, S. A.: Infectious Mononucleosis Complicated by Bilateral Papilloretinal Edema, New Eng. J. Med., 237: 544, 1947.
56. Peil, J. J., Thelander, H. E., and Shaw, E. B.: Infectious Mononucleosis of the Central Nervous System With Bilateral Papilledema, J. of Ped., 37: 661, 1950.
57. Ricker, W., Blumberg, A., Peters, C. H., and Widerman, A.: The Association of the Guillain-Barre Syndrome With Infectious Mononucleosis, Blood. 2: 217, 1947.
58. Creaturo, N. E.: Infectious Mononucleosis and Polyneuritis (Guillain-Barre Syndrome), J. A. M. A., 143: 3, 234, 1950.
59. Hiller, R. I., and Fox, M. J.: Infectious Neuronitis Associated with Infectious Mononucleosis, Marquette Med. Rev., 7: 152, 1943.
60. Graham, S. D., Schwartz, W. H., and Chapman, W. L.: Infectious Neuronitis Complicating Infectious Mononucleosis, U. S. Naval Bull., 49: 914, 1949.
61. Saksena, H. C.: Paralysis of the Serratus Anterior Following Glandular Fever, Brit. Med. J., 2: 267, 1943. Richardson, J. S.: Serratus Magnus Palsy, Lancet, 1: 618, 1942.
62. Davidsohn, I., Stern, K., and Kashiwigi, C.: The Differential Test for Infectious Mononucleosis, Am. J. Clin. Path., 21: 12, 1101, 1951.
63. Davidsohn, I.: Serologic Diagnosis of Infectious Mononucleosis, J. A. M. A., 108: 4, 289, 1937.
64. Kaufman, R. E.: Heterophile Antibody Reaction in Infectious Mononucleosis, Ann. Int. Med., 21: 230, 1944.
65. Paul, J. R., and Bunnell, W. W.: The Presence of Heterophile Antibodies in Infectious Mononucleosis, Am. J. Med. Sci., 183: 90, 1932.
66. Schultz, I. E.: Heterophile Antibody Titer in Disease Other Than Infectious Mononucleosis, Arch. Int. Med., 81: 3, 328, 1948.
67. Kent, C. F.: "False" Positive Paul-Bunnell (Heterophile) Reaction, Am. J. Clin. Path., 10: 576, 1940.
68. Bornstein, S.: Heterophile Antibody Reaction Caused by Bacterial Infection, Ann. Int. Med., 26: 472, 1942.
69. Goldman, R., Fishkin, B. G., and Peterson, E. T.: The Value of the Heterophile Antibody Reaction in the Lymphomatous Diseases, J. Lab. and Clin. Med., 35: 681, 1950.

PRESIDENT'S PAGE

Dear Doctor:

The mundane affairs of everyday existence become less frenzied during this holiday season. Problems of survival and of economics and problems of war and of government melt, even if ever so briefly, while our thoughts turn toward the Bethlehem star.

So in the place of my usual concern over the troubles besetting us, may I devote this space toward wishing each of you a Merry Christmas and Glorious New Year.

Sincerely,



EDITORIAL COMMENT

Executive Assistant for Society

The Kansas Medical Society is pleased to announce that an addition has been provided in the office. This new position, known as that of executive assistant, will enable the Society to expand its public relations as well as its other operational activities.

The Council acted to create this new position about six months ago. During the interval since that time, some 15 persons applied, and after references were received this field was narrowed to three. The final decision was made by the Executive Committee after personal interviews.

On December 1, 1952, Mr. Rueben Dalbec began his work with the Society as executive assistant. Mr. Dalbec is of Swedish and German descent, and comes originally from Wisconsin. He is 28 years old, a veteran of three years service with the Coast Guard, and a graduate of the University of Wisconsin. Prior to this position, Mr. Dalbec was manager of the Student Union Building at Washburn University. He organized this important campus activity and comes to the Society with highest recommendations from the president and the faculty at the university.

Mr. Dalbec is married and has two children, ages nine and five. Prior to his coming to Topeka, he was the assistant manager of the Student Union Building at the University of Wisconsin. His avocation is music, in which he has achieved professional recognition, having at one time written and directed the Miss America Pageant at Atlantic City.

Mr. Dalbec will assist the executive secretary in all the different Society functions and will give to the Society the advantage of an additional person to carry out its expanding public service program.

Medicine's Political Responsibility

On November 4 the American people voted a political change in their policy of federal government. While this will affect various activities in many fields, the election has also altered the subject of health care for the people of this nation. This difference has been variously expressed by different people, but perhaps the shortest and the most accurate evaluation is that medicine will now face a direct responsibility toward the practical solution of existing health problems.

Expanding that statement slightly, it will be recalled that during the past few years the consumer of health services has dominated the picture, relegating the physician into the role of critic. It now becomes medicine's responsibility to explore the health needs of this nation, to correct public opinion where it is in error, and to correct deficiencies in service where they exist. The difference will lie in the fact that today medicine has an opportunity of providing this answer along lines that are scientifically sound. Therefore, it appears that the crisis of medicine is not less acute than before, that on the contrary the physician faces an enlarged obligation. He is, however, provided with an opportunity to justify his position. In that role it appears that no single effort should be relaxed, but that practical and appropriate solutions must be found for those problems the public is asking to have solved.

The opportunity presents itself because of the stand taken by Mr. Eisenhower and the Republican Party on medical issues. It is well known that Mr. Eisenhower is opposed to socialized medicine and to compulsory health insurance. This, however, has not solved the public clamor for some means whereby the cost of catastrophic illness may be amortized nor does it provide an adequate supply of physicians to all sections of our nation.

Mr. Eisenhower is determined that medical education shall be provided without resorting to federal financial assistance. Here again the challenge rests with the medical profession, because medical education must find some means of becoming solvent. The general has also promised a firm assessment of the Veterans Administration's medical care program, but unless a sound plan can be developed, the end result certainly will not be an improvement on the present situation.

And there are many more issues upon which the new president and the party he represents have stated that they expect to take action. The course that will be taken depends upon the soundness and the effectiveness of the advice given them by the profession itself. That represents in outline an explanation of the earlier statement declaring that medicine's obligation today is greater than ever before.

American Medical Education Foundation

A renewed effort to stimulate gifts to the American Medical Education Foundation, in the hope that contributions may total one million dollars by January 1, 1953, is now being made by the American Medical Association. Individual solicitation is being conducted by direct mail, but a reminder is printed here to call the attention of Kansas physicians to their obligation of supporting the future of medical education.

The need for such support is obvious. Physicians, as a group, have resisted efforts of the government to provide federal funds for the purpose, thereby

implying that money could and would be obtained from other sources. They have inaugurated a program for collecting those funds, and now need only individual action from the membership of the A.M.A. to prove that the profession is interested in its own future.

From a selfish point of view, a physician can also find reasons for generosity to the Foundation. The income tax scale for 1952 is the highest it has ever climbed, and business men assert that years of high taxation are years in which contributions can be made most economically. Contributions to the Foundation are deductible up to 20 per cent of taxable net income.

The net cost of gifts to the Foundation must be computed on an individual basis. An example, however, will illustrate the effect. A married physician who has two children, whose contributions are 10 per cent of his adjusted gross income of $5000, could give $1000 to the Foundation and would thereby be eligible to deduct $222 from his tax payment. If his income and contribution were doubled, his tax saving would be $492. Those whose adjusted gross income totaled $20,000, could contribute $4000 and realize a tax saving of $1340.

Kansas cannot compete with more populous states in the amount of its contribution, but Kansans individually have it in their power to raise the per capita gifts to a level of which we can be proud. The Kansas Medical Society endorses this project and hopes that physicians will send checks in generous amounts before the end of the year. The address to be used is American Medical Education Foundation, 535 North Dearborn Street, Chicago 10, Illinois.

Medical Board Reports

A report from the Kansas State Board of Medical Registration and Examination was made to the Hon. Edward F. Arn, Governor of Kansas, on November 1 by Dr. O. W. Davidson, secretary. The Journal thought it was of interest to the profession to obtain statistical information regarding the physicians of Kansas, and therefore requested Dr. Davidson's permission to publish the report which follows.

* * *

It is my privilege to present a report upon the activities and status of the Kansas State Board of Medical Registration and Examination for the period of July 1, 1951, to June 30, 1952.

We have at present 3,091 licensed physicians on our records; of this number 1,950 are located in Kansas. The out-of-state registrations include 151 who are at present in military service and exempt for such period of re-registration fee. Our in-state registration gives us a per-capita ratio of about one physician for every 1,000 persons in Kansas. This places Kansas in a very favorable position in the per-inhabitant ratio of the states of the union.

Since we now have no established reciprocity system with other states in the matter of exchange of licensing, we may recognize the license of any other state whose preliminary qualifications are the same as or equal to ours, and who extend the same privileges to our licensees, provided they have received their license by examination and not through reciprocity with some other state. Diplomates of the National Board of Examiners may, at the discretion of our Board, be licensed without further examination.

Graduates of foreign medical schools may be licensed if they produce proof of U. S. citizenship and board-acceptable qualifications. All such applicants are required to take the written examination. Foreign graduates, with potential qualifications for examination, may be issued Fellowship Certificates for rights to practice in state-governed hospitals if they are accepted for training and service in such institutions. Five such fellowships have been issued during the fiscal year just past and 99 inquiries from foreign doctors have been received and answered.

During the period covered by this report, the Board has issued 183 licenses, 90 by examination and 93 by endorsement. Four applicants failed to pass the written examination. Twenty-four failures of licensees to pay the annual re-registration fee resulted in cancellation of their rights to practice medicine in Kansas. All of these were out-of-state, except eight, who have forfeited their rights also. Reinstatements were made by 38 who produced evidence, satisfactory to the Board, concerning their ethics, moral and professional conduct. Sixteen licensees were lost by death and five by retirement. Fifty-two temporary permits were issued during this period, to applicants with acceptable qualifications which gave them the right to practice until the next regular Board meeting when their applications were confirmed. One hundred sixty-nine inquiries from the Bureau of Narcotics were received and answered concerning the status of physicians.

All inquiries concerning professional conduct were followed up and resulted in one or more personal conferences with the secretary and attorney for the Board. In 15 instances, hearings were held before the entire Board. In two instances, physicians accepted recommendations that they suspend practice in Kansas until they had satisfactorily corrected habits that made it undesirable for them to practice. In co-operation with special committees of the Kansas Medical Society, grievances have been settled, in many instances, without publicity or embarrassment to anyone. Through such co-operation with the Kansas Medical Society and the University of Kansas School of Medicine at the student level, much is

being accomplished to promote good public relations and provide Kansas with competent doctors of medicine.

The annual registration notices were sent to 3,400 physicians; second notices were necessary for 239. During the year 100 endorsements were executed on applications to other states, and six duplicate licenses were issued to replace those legitimately lost or destroyed. Approximately 200 communications were handled by the attorney for the Board in addition to an average of 15-20 daily communications by the secretary's office. Congratulatory communications were sent to all physicians who received newspaper or medical journal publicity for 40 or more years of service to the public.

In addition to full attendance at four Board meetings, during the period of this report, three members of the Board represented Kansas at the annual meeting of the National Federation of Medical Examining Boards in Chicago, Illinois.

The fee for license by examination in Kansas is $25; license by endorsement from another state is $50 or equivalent to the amount that state charges a licensee from Kansas. The annual re-registration fee is $1.00; the reinstatement fee is $5.00. A fee of $10 is charged by the Board for endorsement of applications to other states, rendering a duplicate license or issuing a temporary permit. All collections are sent to the Kansas state treasurer, where 10 per cent is transferred to the general fund. All expenditures of the Board are paid by voucher on the state treasurer. Our records are audited annually by the state auditor. The secretary and clerk of the Board are bonded. Total amount collected for the period of this report was $12,751; total amount disbursed during that period was $12,268.82.

Respectfully submitted,

O. W. Davidson, M.D., Secretary.

Kansas Division, A.C.S., Elects

Dr. Charles H. Miller, Parsons, was named president of the Kansas Division of the American Cancer Society at a meeting held in Topeka last month. Other officers elected are: vice president, Mrs. Tom Stewart, Wellington; secretary, Mr. J. W. Kirkpatrick, El Dorado; treasurer, Mr. Robert A. McClure, Topeka; chairman of executive committee, Mr. A. H. Saville, Topeka; executive director and assistant secretary, Mr. W. Miles Pulford, Topeka.

Service Separations

As a service to physicians and communities in this state desiring additional medical personnel, the Journal of the Kansas Medical Society will publish in this column each month the names of medical officers who will shortly be separated from the armed forces. These are men who volunteered from Kansas, and many of them will probably be interested in finding locations in this state. Anyone interested in contacting these physicians may write to the address here given.

Niles A. Borop, Jr., M.D.
U. S. Army Hospital
Camp Carson, Colorado

Frank C. Brosius, Jr., M.D.
126 South Fountain
Wichita, Kansas

Bernard A. Brungardt, M.D.
137 North 9th Street
Salina, Kansas

Herbert Bunker, Jr., M.D.
U. S. Army Hospital
Fort Riley, Kansas

Eran O. Burgert, Jr., M.D.
2620 East Waterman
Wichita 7, Kansas

James H. Enns, M.D.
211 S. E. 4th
Newton, Kansas

Mayer Fisch, M.D.
Winter VA Hospital
Topeka, Kansas

Charles C. Gilkey, M.D.
1731 Clay Street
Topeka, Kansas

Charles R. Hopper, M.D.
172 Artillery Loop
Fort Sam Houston, Texas

Edwin R. King, M.D.
1708 First Street, N.W.
Washington 1, D. C.

Robert V. Kirk, M.D.
248 West 12th Street
Horton, Kansas

David Lukens, M.D.
129 West 19th Street
Hutchinson, Kansas

Ward A. McClanahan, M.D.
1425½ Buchanan
Topeka, Kansas

Arthur W. McMahon, Jr., M.D.
Winter V.A. Hospital
Topeka, Kansas

Don R. Miller, M.D.
1847 Oakland
Kansas City, Kansas

Max E. Musgrave, M.D.
Denton, Kansas

William J. Reals, M.D.
Wichita Hospital
Wichita, Kansas

Joseph E. Seitz, M.D.
Wakeeney, Kansas

Dana A. Tompkins, M.D.
Route 2
Bonner Springs, Kansas

Richard C. Tozer, M.D.
Winter V.A. Hospital
Topeka, Kansas

Harold M. Voth, M.D.
2115 West 10th Street
Topeka, Kansas

John L. Weaver, M.D.
4206 Prairie Lane
Mission, Kansas

Robert Weimer, M.D.
206 Third Street
Fort Leavenworth, Kansas

George A. Westfall, Jr., M.D.
Hertzler Clinic
Halstead, Kansas

Lyle E. Wonderlich, M.D.
612 Eighth Street
Concordia, Kansas

Case Reports from the University of Kansas Medical Center Tumor Conference*

Germinal Tumors of the Testis

Edited by Harlan I. Firminger, M.D., and Floyd R. Skelton, M.D.**

Dr. Helwig: Today we have three cases of testicular tumor, forming a nucleus for discussion of the prognosis of such cases and the pathologic, surgical, roentgenologic and endocrinologic aspects of the problems which testicular tumors present. Dr. Stockton, would you present the histories in these three cases, and then we will proceed to the discussion.

Case No. 52-104

Dr. Stockton: A 44-year-old minister was admitted to the hospital in June, 1950, complaining of low back pain, fever, anorexia and weight loss. Twenty-four years previously he spontaneously developed pain, swelling and increased temperature in the right scrotum. These inflammatory symptoms subsided in about 10 days, but the swelling and the firmness persisted, and the testicle continued to become slowly larger throughout the years. About two years ago the patient again started having aching pain in the right testicle and some back pain. This finally became so severe that he sought medical aid at another hospital in 1949.

The diagnosis of a probable neoplasm was made and an orchiectomy performed. The patient was advised that the tumor was carcinoma, and subsequently he received 37 x-ray treatments. He remained asymptomatic from November, 1949, until April, 1950, when weakness, fever and low back pain recurred. By the time of admission to this hospital in June he had lost approximately 15 pounds since his orchiectomy. He also complained of a recent non-productive cough and a feeling of fullness in his throat. The man did not look particularly ill, but he was extremely nervous. The striking thing on physical inspection was a fullness in the suprasternal notch with dilatation of the superficial veins in his throat. When he turned his head it was easy to note a large supraclavicular node on the left. Examination revealed a smaller node in a similar position on the right. His right testicle was absent but there was no induration, tenderness, or evidence of local recurrence.

Could we have the x-ray findings on this man?

Dr. Litton: Roentgenograms of the chest revealed a circumscribed mediastinal mass involving the hilar and peritracheal lymph nodes on the right, and, to a lesser extent, on the left. This was interpreted as undoubtedly a metastatic mass. A lateral film of the spine strongly suggested metastasis involving the pars medialis and the base of the spinous process of the fifth lumbar vertebra. It was felt that this patient had widespread metastases from the previously removed tumor of the testicle.

Dr. Stockton: Because of these roentgenological findings and the presence of the enlarged supraclavicular nodes, we felt that he had rather widespread metastases from the tumor of the testicle and we advised x-ray therapy, which he received as an outpatient. I have not heard from the man, but the Tumor Registry has ascertained that he died in June, 1951.

Case No. 52-105

The second case is that of a 38-year-old white man, who was admitted to the hospital on May 12, 1950, complaining of a recurrence of aching pain and swelling in the right groin of 4½ months duration, following surgical removal of his right testicle in November, 1949, at another hospital. The patient stated that he had had an aching pain in his right scrotum and enlargement of the testicle approximately three years before. He did not seek medical advice at that time and, in fact, did not do so until the testicular enlargement was approximately the size of an orange and causing him considerable discomfort. His local doctor then did a right orchiectomy and advised him that the tumor was cancer, Grade IV. The patient was asymptomatic following surgery until January, 1950, at which time he again developed aching pain and swelling in the right groin. He entered this hospital on the advice of his local doctor.

Physical examination was essentially negative except for a hard, nodular, semi-fixed mass approximately 2 x 5 cm. overlying the pubis just to the right of the penis. The mass extended deep into the soft tissue and was moderately tender to palpation. Laboratory studies were within normal limits. X-rays of the chest, kidneys, ureters and bladder were considered normal.

On May 13, 1950, the patient was taken to the operating room, where a high inguinal incision was made and the right spermatic cord ligated and severed before removal of the carcinomatous recurrence

*Cancer teaching activities aided by a training grant from the National Cancer Institute, U. S. Public Health Service, and the Kansas Division of the American Cancer Society.

**Trainee of the National Cancer Institute.

in the stump of the cord. This lesion was grossly neoplastic and was dissected *in toto*. The scrotum was invaginated and all scar tissue excised. Dissection was carried retroperitoneally along the iliac vessels, but no node involvement was discovered. Postoperatively the patient developed a thrombophlebitis in the right leg and was placed on heparin and dicumarol therapy. X-ray therapy was started on June 9, 1950, and the patient was dismissed on June 16, to continue x-ray treatments as an outpatient. The pathology report on the surgical specimen was embryonal carcinoma with foci of necrosis and hemorrhage. A report from this man's local physician states that he died on March 3, 1951.

Case No. 52-106

The third case is that of a 44-year-old man, admitted with the complaint of a moderately painful mass in the left upper quadrant and loss of approximately 30 pounds of weight in the previous two months. His history revealed that 15 years prior to admission he had had a left orchiectomy for a tumor mass, which had been reported at this hospital as alveolar sarcoma. He received x-ray therapy and was completely asymptomatic from 1937 until about 18 months prior to this admission in 1952. When symptoms of backache and some weakness recurred, he consulted a doctor in Texas, who said that his left kidney was ptotic and did not drain properly. The pain became more severe. Shortly thereafter he noticed the development of a mass in the left upper quadrant and he came to this hospital, bringing intravenous pyelograms which showed a non-functioning left kidney.

On physical examination the only positive finding was a large, hard, non-tender mass in the left upper quadrant of the abdomen extending from the rib margin to the iliac crest and a little to the right of the umbilicus. He was given x-ray therapy for eight days with no apparent diminution in size of the mass, so he was admitted to this hospital for further evaluation and possible surgical treatment. Findings on admission were essentially the same, and laboratory studies were negative except for 75 per cent hemoglobin and elevation of the sedimentation rate to 25 mm. in one hour.

Could we see his x-rays, please?

Dr. Litton: The roentgenogram of the chest is essentially normal, but retrograde pyelograms (Figure 1) reveal a deformity of the lower pole of the left kidney and upper third of the left ureter. This was interpreted as hydronephrosis, probably due to an obstruction from a neoplasm. This could be the result either of metastatic involvement of the lymph nodes surrounding the ureter, or possibly a primary tumor involving the left ureter.

Dr. Stockton: He was taken to surgery on July 19 of this year, and a mass was found which occupied almost the entire left retroperitoneal gutter, involving the vascular pedicle of the left kidney and the ureter so hopelessly that it could not be dissected out. Because of the hydronephrosis and the possibility of pyelonephritis with attending sepsis, it was felt that as a palliative measure it would be worthwhile to take out the kidney, which was done. A biopsy was taken of the mass, which later proved to show only acute and chronic inflammatory fibrous tissue. We felt, however, that this was a metastasis from the tumor of the testicle which had been removed 15 years earlier, and he was given x-ray therapy prior to dismissal. This patient has not been back for a checkup, and as far as I know we have no follow-up on him.

Dr. Helwig: Did he have any regression in the retroperitoneal mass following his x-ray therapy?

Dr. Tice: He got relief from pain and felt better.

Dr. Helwig: I think the whole problem we see here is unique; for a patient to go for 15 years and then have a recurrence along the distribution of the spermatic vein is an unusual story. The fact that we could not establish the presence of any tumor histologically further clouds the picture. How big was the mass that you removed by biopsy?

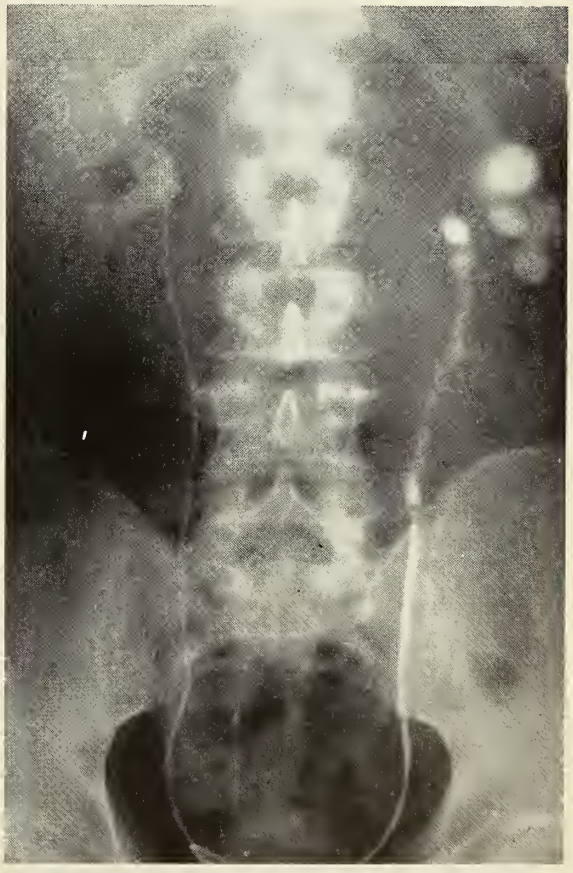


Figure 1. Case No. 52-106. Retrograde pyelogram reveals dilatation of the renal calyces and upper part of the ureter on the left with irregularities and distortion of the left ureter suggestive of compression by a surrounding tumor mass or direct involvement of the ureter by tumor.

Dr. Stockton: It was a very small piece.

Dr. Tice: Do you think you missed the tumor, or do you think the biopsy tissue was representative of the tumor?

Dr. Stockton: I think I missed the tumor.

Dr. Helwig: Do you think inflammatory tissue would account for this mass, Dr. Tice, or did you feel you were actually dealing with a local tumor recurrence?

Dr. Tice: There was a question in my mind. The retrograde pyelograms revealed a large mass. I interpreted it as a recurrence of the testicular tumor or a primary kidney tumor.

Dr. Helwig: Dr. Stoddard, would you show the pathologic findings on these three cases, please?

Dr. Stoddard: Testicular tumors present a field of diagnosis in which there is room for difference of opinion and, furthermore, there has been a great deal of variation in the terminology that has been applied to the same tumor. According to our presently accepted terminology, I think we can consider that these are three instances of seminoma. In the first two cases, you will recall, the orchiectomies were done at other hospitals and I have nothing to tell you about the gross specimens. In the second case, approximately 10 months before death a length of spermatic cord and a 5 x 5 x 4 cm. gray homogeneous tumor mass were removed in this hospital. In the third case, we do not have available at this time the report on the specimen removed 15 years ago, but we do have a histological section from that specimen. In addition, we have the kidney and the biopsy that turned out not to be neoplasm which were removed at operation in July, 1952.

Histological sections in the first two cases are essentially identical. Each reveals a tumor remarkably uniform in its cytological composition with areas of necrosis characteristic of seminoma. The tumor is composed of rather poorly defined cords of cells. The cells are quite uniform, with abundant pale cytoplasm, often with the cellular outline indefinite, and round vesicular nuclei containing a nucleolus. In the stroma there are small lymphocytes, often seen in seminoma. Both of these tumors contain a moderate amount of fibrous stroma (Figure 2). One must always be on the lookout in testicular tumors for variation from area to area, and I looked at the material we have with some diligence without finding such variation.

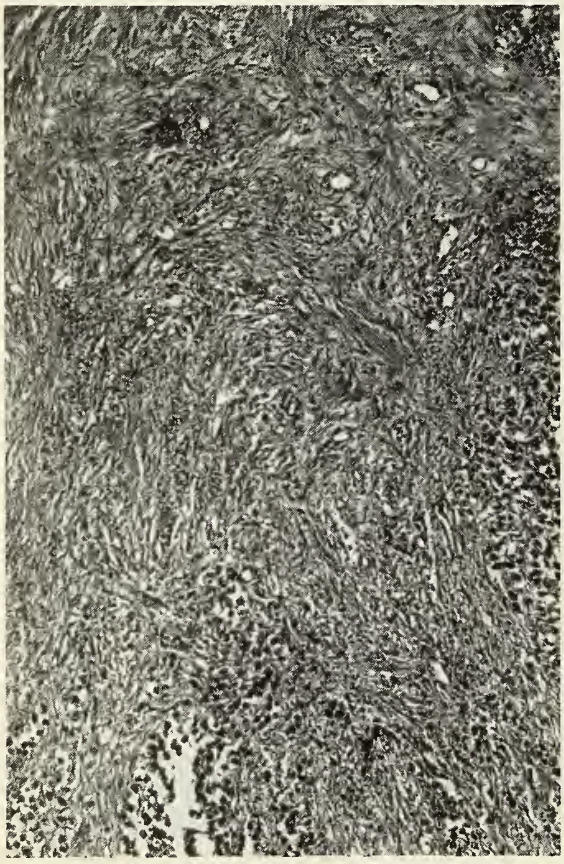


Figure 2. Case No. 52-104. A representative area of dense fibrosis seen in many places in both the first and second cases. A small amount of the seminoma is evident in the lower part of the picture and along the right margin. Hematoxylin and eosin. X 110.

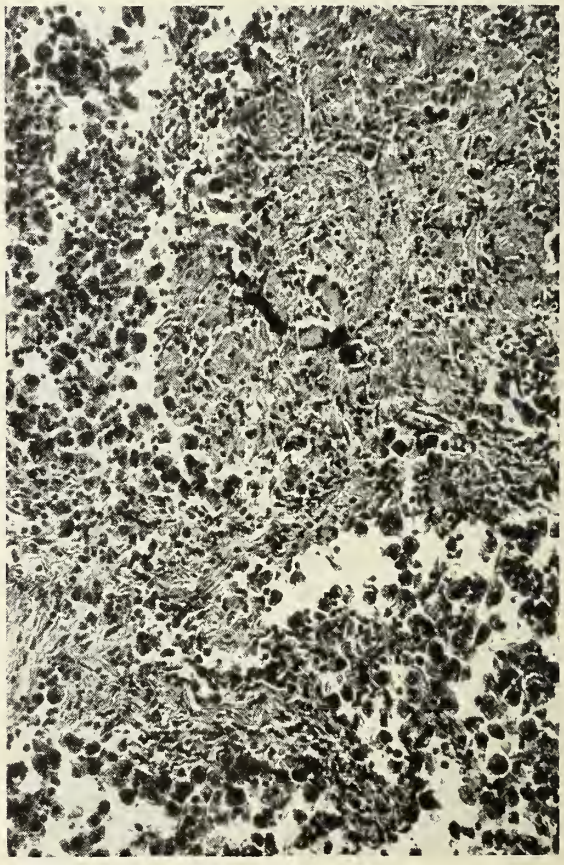


Figure 3. Case No. 52-106. Granulomatous focus with prominent multinucleated giant cells. Surrounding seminoma contains a small amount of lymphoid stroma in this area. Hematoxylin and eosin. X 190.

In the third case, the tumor has almost all the histological features that have been described in seminomas. The cells are much the same, and they are arranged in the same kind of grouping. Once more we have lymphocytes in the stroma. In addition, there are little areas in the stroma showing a granulomatous type of proliferation (Figure 3). The kidney shows the changes characteristic of pyelonephritis and, I think, too, some atrophy, perhaps because of compromising of the renal artery by the mass around it. The small biopsy specimen was composed only of fibrous and inflammatory tissue.

Discussion

Dr. Helwig: It is rather interesting in the first two cases that these patients went such a long time before they had anything done, and that is a common story. I think in almost 700 cases of undescended testis that the Leahy Clinic[1] had, the average duration before diagnosis was approximately 15 months, because patients usually do not have local pain and discomfort early.

I would like to re-emphasize what Dr. Stoddard said about classification of these tumors. Up until the large amount of material was studied from the Second World War—I think well over 1000 cases, perhaps considerably more—at the Armed Forces Institute of Pathology,[2] there was no meeting of the minds apparently on nomenclature, particularly since some, following Dr. Ewing, left out the old diagnosis of seminoma and referred to them as embryonal carcinoma with or without lymphoid stroma. However, I believe this new classification—it's not new, but it's worked out on rather large amounts of material, you must admit—of the adult teratoma, the seminoma, the embryonal carcinoma, the teratocarcinoma, and the choriocarcinoma, more or less fits in with our ideas.

Dr. Firminger: I would like to report on the sequel to that work you refer to, Dr. Helwig. The lack of adequate follow-up information on these cases was the greatest deficiency of the report by Friedman and Moore[2] in the memorial issue for Colonel Ash in the *Military Surgeon* back in 1946. Subsequently, Dixon and Moore[3] followed up these cases, and now have information on almost all for at least two years and, in many instances, for five years.

Dixon and Moore analyzed 894 primary germinal tumors of the testis; 536 of them were "pure" and 358 were mixed. By "pure" they meant tumors in which on all the sections they examined, which were usually several, they found only one histologic type. Their results show "pure" choriocarcinoma is a rare tumor and constitutes less than one per cent of testicular tumors; seminoma, on the other hand, is the most common type of "pure" germinal tumor. In their analysis of the mixed variety, seminoma was found in 34 per cent, embryonal carcinoma in almost 90 per cent, choriocarcinoma in about 8 per cent, and so on. So you can see what a mixed mixture there can be.

When the histologic types are analyzed as to mortality, the pure seminoma has a low mortality; only eight per cent dead in two years and 11 per cent dead in five years. As is true of all the germinal tumors, about 90 per cent of the patients who are going to die within five years are dead in two years. So a two-year follow-up is actually a fairly satisfactory follow-up for testicular tumors of the germinal type. Although pure seminoma has the lowest mortality, when it is mixed with other tumor types it does not appear to lower the mortality. Interestingly, the study of Dixon and Moore revealed that when embryonal carcinoma begins to form teratomatous elements, the mortality is markedly improved; and when it differentiates completely to the adult type, the mortality is even further improved. Dixon and Moore explain the still sizable mortality of adult teratoma by metastasis occurring before this tissue has differentiated; however, they admit that their examination was not adequate to rule out possible concurrent presence of embryonal carcinoma.

The study of Dixon and Moore has gone still further; and since we are primarily interested in seminoma in this conference, I might give you some information that they gathered on seminoma. They examined their group of seminomas to see if they could find any histologic differences that were significant. They classified all the things they could recognize in seminomas and put the data on punch cards. They analyzed such things as the incidence of mitotic figures, the size of the cells, the presence of fibrosis, the presence of eosinophils, the presence of lymphoid stroma, the presense of necrosis, the presence of hemorrhage, vascular invasion, lymphatic invasion, the presence of a granulomatous reaction, and things of that sort.

Then they analyzed the punch cards for all these different elements and found that five of these histologic findings were significant in relation to mortality. The figures that they reported in Paris showed seminomas with lymphoid infiltration had a mortality of only four per cent. If there was no lymphoid infiltration of any notable degree, the mortality went up to 16 per cent. If there was infiltration by eosinophils, the mortality was only three per cent; if there was no eosinophil infiltration, the mortality, according to them, was 11 per cent. Stromal response appeared to be bad, because if there was no stromal response there was only seven per cent mortality; but if there was stromal response,

in the sense of fibrosis, such as we saw in these first two tumors, the mortality was 19 per cent.

The presence of vascular invasion, as seen in the ordinary hematoxylin and eosin sections forebode a much higher mortality than any of the other factors. The presence of granulomatous reaction was one of the best things one could find, and the mortality went down to three per cent. Interestingly, granulomatous reaction was present in the third case, the man who has lived 15 years.

I think some question arises as to what constitutes lymphoid infiltration or the absence of lymphoid infiltration, but it is interesting that these cases would seem to agree with Dixon and Moore's statistical findings, because in both patients who died soon there was a fair amount of fibrous reaction (Figure 2). In the case that survived, there was this granulomatous reaction (Figure 3), and in one portion of the section there was actual lymphoid tissue, both apparently prognostically favorable findings.

Dr. Stoddard: How was variation in treatment taken into account in this series?

Dr. Firminger: Fairly well. Dixon and Moore said that 89 per cent of the patients were treated by surgical excision and postoperative x-ray. Unfortunately, they did not throw out the five per cent who were treated by surgery alone and those who were treated by radiation alone; but the 89 per cent treated similarly—I say similarly with my tongue in my cheek, because they were not treated by the same individuals, but treated at least by orchiectomy and postoperative x-ray—would add some uniformity and some validity to the figures.

Dr. Helwig: Dr. Firminger, would you care to comment on bioassay in this group of neoplasms?

Dr. Firminger: The bioassay studies that were done on this group of tumors that you referred to from the Armed Forces Institute of Pathology were done at such varied places and so non-uniformly that they were not worth much. However, some very interesting studies were done by Hamburger,[4] in which he found a high correlation of secretion of pituitary follicular-stimulating hormone, FSH, with cases of seminoma. In cases of teratocarcinoma and the mixed type of tumors of the testis, there tended to be chorionic gonadotropin in the urine. These findings were not diagnostic, and there were many cases of tumors that did not show either hormone. The finding of FSH in cases of seminoma was apparently due to the castration effect of the tumor rather than secretion by the tumor itself; it was no higher than the level found in hemicastrated individuals. On the other hand, it was thought that the chorionic gonadotropin might well originate in the testicular tumor, and Hamburger and others have shown that when one finds chorionic gonadotropin in the urine the prognosis is poor.

Dr. Helwig: Would you like to comment on the survival rate of the choriocarcinoma?

Dr. Firminger: I am not prepared to give any definitive information on the survival rate of cases of choriocarcinoma except to say that it's probably the worst testicular tumor that we have and it approaches 100 per cent mortality.

Dr. Helwig: Thank you, Doctor. In the early days of the study of testicular tumors, some of you may recall that Ferguson[5] at Memorial did a great deal of work on bioassay, and he led everybody pretty much astray as to what he felt he was able to do in histologic type with simply gonadotropin determinations in the uterine muscle of the mouse. He went so far that it almost became ridiculous, because at that time they were treating the lesion locally with radiation and then taking out a "batch of soup," and pathologically you often didn't know what the tumor was. But this more recent work has, I think, cleared up this misunderstanding.

Dr. Schloerb: I would like to ask a question about the FSH assay. Is this a postoperative assay, or preoperative? In other words, did the patient have one normal testis?

Dr. Firminger: The patients did have one normal testis. I'm not quite sure what the division was on the preoperative and postoperative basis.

Dr. Helwig: I know you are all familiar with Michalowsky's[6] original experiments of inducing teratomas in the testis of the rooster with zinc chloride. And then Halsey Bagg[7] came along and saw that when the rooster's wattles are nice and red and he is ready for the springtime, you could induce these tumors with great ease, whereas if you waited till the winter months when his comb and wattles began more or less to droop, you had no success. However, with the use of anterior pituitary hormone he could produce testicular teratomas at any time of the year in the rooster.

Another point of interest is the relationship here to cryptorchidism. In one series of 694 cases of cryptorchids,[1] 11 per cent had carcinoma, which is about 48 to 50 times as frequent as the incidence in the general male population. Further, in the case of a single cryptorchid, if a tumor occurred, in approximately 98 per cent it occurred in the cryptorchid testis, and not in the normal testis; whereas if a tumor developed in a case of bilateral cryptorchidism, there was a 25 per cent chance that the tumor would be bilateral. So with those striking figures, I think we must admit that there is some etiologic relationship in undescended testes to the development of a malignant tumor. It used to be

thought that this was apparent rather than real, but a careful study, I believe, has borne out its reality.

There are two points in therapy that I think are worth discussing. There seems to be a mild difference of opinion—or maybe there was, maybe that's all been settled now—regarding the extent of the surgery before irradiation is done, whether you go up and try to do a big job or simply get as much of the cord as you can, and then start your x-ray. So I am going to ask you, Dr. Stockton, to discuss the surgical aspect; and then I'll ask Dr. Tice to talk about x-ray. Would you mind commenting, please?

Dr. Stockton: In the reports of treatment of these tumors in the urological journals there have been a number of articles concerning very small series really, as to the proper treatment, whether simple excision or simple excision plus lymph node dissection; all are followed by radiation of course. There is no question in anybody's mind but that the spermatic cord should be ligated high, that is, at the internal ring, before any manipulation of the tumor. And that is the procedure in most hospitals. But we still see a lot of patients who come in, where their local physicians have taken the testicle out through an incision in the scrotum, which we feel is the wrong thing to do. The literature is in agreement on that.

Now whether there is any need for radical retroperitoneal dissection, I find hard to answer. Merren, Vest and Lupton[8] reported a small series of cases in which simple orchiectomy was done, that is, the high ligation, followed by x-ray therapy, with a 53 per cent survival. They had followed those patients from two to 23 years. And then there is a series, I think of 45 cases, done by Lewis,[9] in which he did orchiectomy plus what he termed a radical dissection, followed by x-ray therapy, and had only a 35 per cent survival. He had followed those patients only a year and a half to five years.

I, myself, rather have the feeling, depending on the individual case, the history of how long this tumor has been there and the preoperative findings, that high ligation of the cord, removal of the testicle, and x-ray therapy is probably going to give us as good a result as a radical lymph node dissection. There is another thing that I think is important, especially in cases of seminoma, because they have a much better prognosis than the other malignant tumors of the testicle. I think there have been reported anywhere from 55 to 65 per cent five-year survivals. I think that one shouldn't doom a man even with metastatic lesions. I have seen reports of two cases[8] that had pulmonary metastases, one of whom received only x-ray therapy with removal of the tumor, and the other man had removal of this tumor and lobectomy. Both of those patients are alive, four and seven years later respectively. So that's not an entirely hopeless situation.

Dr. Helwig: I know Dr. Pohle[10] of Wisconsin in 1938 reported a boy with multiple "snowballs" in his chest who survived around 13 years after only x-ray to the chest. I have seen no follow-up on that case, but it's always made me feel that even if they've got metastases in the lungs, it's worthwhile to treat the involved areas with x-ray.

If there is anything that has been a real triumph, to my way of looking, for radiation therapy, it's been in the management of this group of tumors. Even in my short life, I can still remember as a medical student and for many years thereafter that if in a student—and we see it frequently in medical students because that's the age at which it occurs—you made the diagnosis of testicular tumor, you told the boy to make his peace with God because he was doomed, and he was usually dead within 18 months or two years. Now, with seminoma and some of the embryonal carcinomas, it is possible to salvage by x-ray therapy and orchiectomy as much as 70 per cent of these patients for five years or longer; and if you get them by that five-year period, the outlook is pretty rosy. Hasn't that been your experience, Dr. Tice, that you get quite an insignificant number of recurrences after that date?

Dr. Tice: Of these three cases, the first one did not respond in the slightest to radiation therapy. He had had quite a lot of radiation elsewhere, so we didn't feel like extending the dose very high. He did not respond; his mass did not regress and his pain was not relieved. The last case, the man who had his tumor 15 years ago, did show definite response. We haven't had a follow-up, but we should get it soon.

One of the most interesting cases we have had was a young fellow who came in about 15 years ago with a mass in his abdomen, with a history of having had a testicular tumor removed by an osteopath. He was given radiation, on the assumption that it was seminoma. The mass regressed. He returned 18 months later and his mass was gone. He was feeling fine. I made the remark that I wished that I had a specimen, just to prove that he had had a tumor in the first place. He said, "I have it at home in a bottle on the mantle." He sent it to us, and Dr. Wahl sectioned it and reported that he had had a malignant seminoma. So we did prove our diagnosis. I have followed him now for about 15 years.

I think the important thing in treating these cases is not to limit the radiation to the pelvic lymph nodes, but to treat the periaortic nodes. I think the mistake made on the third case was that we did limit our radiation 15 years ago to the pelvis.

When he came back, he had his recurrence higher up. We give the greatest dose possible to the pelvis and also radiate the periaortic nodes and perhaps even radiate the thoracic lymph nodes. I try to get as much as 3,000 r depth dose into the periaortic nodes and into the pelvis as routine procedure. I think that they should have radiation whether there is evidence of metastasis or not.

Dr. Firminger: There is one other figure from the studies of Dixon and Moore which I would like to give you. It refers to the survival of patients that already have metastases. Apparently the size of the tumor at the time the patient is seen is not too important. The seminomas generally were larger than the other tumors, yet, as you see, the survival was better. Of the patients who had seminomas widely disseminated at the time they were seen, 48 per cent were alive two years later. That was not a hopeless condition, and Dixon and Moore attributed this to the susceptibility of seminoma to x-ray. In contrast, patients with other germinal tumors and similarly widespread metastases at the time they were originally seen had a death rate of 90 per cent.

Dr. Helwig: Would anyone like to ask any questions or comment on this series of cases?

Dr. Schloerb: Do many testicular tumors respond to endocrine administration?

Dr. Helwig: Not to my knowledge. Dr. Firminger, do you care to comment on this?

Dr. Firminger: I am hardly qualified to answer that. But I can tell you that those reports I have read in the literature are negative; although it seems logical that they should respond to hormones, none of them have.

Dr. Helwig: Any other comments?

Dr. Stockton: One other thing that I think should be brought out is that about 10 per cent of these tumors are accompanied by hydrocoele.[11] It is very important, I think, when you encounter a hydrocoele, asymptomatic though it may be—because fully 85 to 90 per cent of testicular tumors are asymptomatic except for the hardness when they start out—if you can't palpate the testicles satisfactorily through the surrounding fluid, the hydrocoele should be aspirated or excised to ascertain whether the testicle is normal.

References

1. Murray, O. B., and Ewert, E. E. Malignant Disease in the Undescended Testis. Surg. Clin. North Amer. 27: 709-713, 1947.
2. Friedman, N. B., and Moore, R. A. Tumors of the Testis. Mil. Surg. 99: 573-593, 1946.
3. Dixon, F. J., and Moore, R. A. Unpublished material presented at 5th Internaitonal Cancer Congress, Paris, 1950. (Proceedings to be published in Acta Unio Internationalis Contra Cancrum.)
4. Hamburger, C. On the Nature of Gonadotrophin in Cases of Malignant Tumors of the Testis. Acta path. et microbiol. Scandinav. 18: 457-484, 1941.
5. Ferguson, R. S., Downes, H. R., Ellis, E., and Nicholson, M. E. Preliminary Note on a New Method of Differentiating Testicular Tumors by Biological Means. Am. J. Cancer 15: 835-843, 1931.
6. Michalowsky, I. Eine experimentelle Erzeugung teratoider Geschwülste der Hoden beim Hahn. Virchows Arch. f. path. Anat. 267: 27-62, 1928.
7. Bagg, H. J. Experimental Production of Teratoma Testis in the Fowl. Am. J. Cancer 26: 69-84, 1936.
8. Merren, D. D., Vest, S. A., and Lupton, C. H. Treatment of Malignant Tumors of the Testis. J. Urol. 65: 128-135, 1951.
9. Lewis, L. G. Radical Orchiectomy for Tumors of the Testis. J.A.M.A. 137: 828-832, 1948.
10. Pohle, E. A. Radiation Therapy in Advanced Malignant Disease. Trans. K. C. Acad. Med. 41-51, 1937.
11. Gray, C. P., Thompson, G. J., and McDonald, J. R. The Clinical Findings in 127 Cases of Teratoma of the Testis. J. Urol. 64: 690-696, 1950.

Eight fellowships in industrial medicine will be offered by the U. S. Atomic Energy Commission for the 1953-1954 academic year. Applications will be received until January 1, 1953, by AEC Fellowships in Industrial Medicine, Atomic Energy Project, University of Rochester, School of Medicine and Dentistry, Rochester, New York.

DEATH NOTICES

EDWARD HINMAN JOHNSON, M.D.

Dr. E. H. Johnson, 78, an honorary member and former secretary of the Maroin County Society, died suddenly on October 23 at Walton, while en route from Wichita to his home in Peabody. He was graduated from the College of Physicians and Surgeons, Kansas City, in 1902, and immediately began practice in Peabody. During World War I he served in the Army medical corps. He was active in civic as well as professional affairs, was a member of the Peabody school board for 15 years and took great interest in work with the Boy Scouts.

* * *

ROBERT HAWKINS, M.D.

Dr. Robert Hawkins, 93, a resident of Marysville for 80 years and a practicing physician there for more than 40 years, died on October 25. He received his education at Rush Medical College, Chicago. He was a member of the Marshall County Society and had held honorary membership since his retirement several years ago.

* * *

MILO GOSS SLOO, M.D.

Dr. M. G. Sloo, 73, who practiced in Topeka from 1909 until his retirement in 1948, died on November 4. He attended Topeka schools and the University of Kansas, and completed work for his degree at Rush Medical College, Chicago. After internship at the Santa Fe Hospital, he took postgraduate work in Chicago for three years before returning to Topeka to practice. He was an honorary member of the Shawnee County Medical Society.

BLUE SHIELD

A Visit to U. M. S.

A recent visit to the offices of United Medical Service in New York City re-emphasized the similarity between plans, large and small. Here is a plan operating in 17 counties surrounding the New York City area, dealing with 17,000 participating physicians, serving two and one-half million members, yet their problems and professional relations program are practically identical with those of the Kansas Plan.

This staggering number of participating physicians is not their complete list. This particular plan pays non-participating physicians on the same basis as those who participate, necessitating the listing of some 22,000 physicians. The smallness of the area makes it possible for their professional relations department to work on a much more personal basis than can be achieved in Kansas. Obviously, their professional staff is much larger. Appointments are arranged and calls made at the physician's office, as many as possible in a day.

In Kansas, most of the physician relations activity is accomplished by staff members meeting with the members of the Blue Shield Relations Committee and in turn with each one of the 12 district Blue Shield Relations committees. Personal calls to the physician's office are made in Kansas whenever practicable. Since the Kansas area comprises more than 80,000 square miles with members in all 105 counties, it is necessary to combine meetings whenever possible to conserve the time and energy of busy physicians doing their share of Blue Shield relations work.

The internal case approval section of United Medical Service operates in much the same manner as in Kansas except for the assistance of several physician staff members, both full and part-time. The Physicians' Review Committee is composed of a representative physician from each of the 17 county medical societies in the area. At a monthly meeting of this group, all difficult cases and those over which there has been some controversy about the amount allowed, are considered and adjudicated. This is the same service performed by the Review Committee of the Kansas plan. Here, the committee consists of two members of the Blue Shield Executive Committee and one other appointed physician. The parallel between the kinds of cases which need discussion is striking. Operations for cosmetic purposes seem to require much correspondence and discussion in both plans. Occasionally, the amount allowed for unusual and difficult surgery brings a case to the Review Committee just as it does in Kansas.

In setting up a schedule of allowances, the method used in Kansas—that of depending upon a Fee Committee appointed by the president of the Kansas Medical Society—seems to be the favorite approach. At a conference in New York, representatives from all the plans reported on various methods of arriving at equitable fee schedules. The most professional result seems to come from a medical society fee committee, composed of representatives of the different specialty groups. The duty of this committee is to determine the amounts which can be allowed by Blue Shield relating one fee to another, both according to the amount of dues collected and the income levels.

Approval of contracts and forms is the duty of the members of the Blue Shield board in other states, just as it is in Kansas. All plans are continually searching for ways to achieve the greatest results in cooperation between the member, the physician and the plan. Kansas is no different in this respect. Fortunately, the Kansas Blue Shield was the result of foresight on the part of the House of Delegates of the Kansas Medical Society. Each new Blue Shield board faces the problem of continuation of this rapport.

ACTIVITIES OF MEMBERS

Dr. Ray Parmley, Wichita, was a guest speaker at the Southwestern Surgical Congress at Dallas recently, speaking on "Pediatric Anesthesia."

* * *

Dr. C. E. Scott, who practiced in Abilene for four months, has become a member of the staff of the Mowery Clinic in Salina, where he is doing general practice as well as surgery.

* * *

Dr. Irene A. Koeneke, Halstead, was guest speaker at a meeting of the District of Columbia Medical Society last month.

* * *

Dr. L. A. Latimer, Alexander, who retired last month, has announced plans to move to Kansas City, where he and Mrs. Latimer have built a new home. They were guests of honor at a community party at Alexander recently.

* * *

Dr. E. M. Seydell, Wichita, spoke before the Japanese Otolaryngology Society in Tokyo on November 13.

* * *

Physicians who took part in the third annual Reno County Family Institute at Hutchinson recently were Dr. Warren F. Bernstorf, Winfield; Dr.

Edward Greenwood, Topeka; Dr. V. M. Winkle, Topeka, and Dr. John N. Blank, Hutchinson.

* * *

The Bethel Clinic, Newton, announces that Dr. Quentin Cramer is now a member of its staff, specializing in internal medicine. Dr. Cramer is a graduate of the University of Kansas School of Medicine, and recently completed a three-years residency there.

* * *

Dr. R. C. Belisle, Plainville, who has been attached to the First Marine Division for Navy duty, has returned to this country. He is a patient at a Navy hospital in Oakland, California, recovering from injuries suffered in a jeep accident in September.

* * *

Dr. Paul Laybourne, of the University of Kansas Medical Center, spoke at the Atchison County Guidance Clinic recently before clinic board members and home demonstration unit presidents.

* * *

Dr. L. G. Schwartz served as captain of the Community Chest's medical section in Topeka during the fall campaign for funds.

* * *

Dr. Daniel S. Roccaforte, Hanover, who reported for active duty with the air force on November 10, announces that Dr. Robert White, Kansas City, will serve the community during his absence. Dr. Roccaforte expects to serve as a surgeon at the Smoky Hill Air Base, Salina, during his term of duty, and plans to return to Hanover afterward.

* * *

Dr. Funston J. Eckdall of Emporia, Dr. Warren F. Bernstorf of Winfield and Dr. A. E. Hiebert, Wichita, took part in the fall meeting of the Kansas Medical Assistants' Society at Emporia last month. Each spoke briefly at the gathering.

* * *

Dr. Homer Hiebert, Topeka, was one of the speakers at the formal opening of the radioactive isotope laboratory at Hadley Memorial Hospital at Hays last month.

* * *

Dr. Richard Reece returned October 5 from Tokyo, where he had spent a year in Army service, and is now serving again as Butler-Greenwood county health officer.

* * *

Dr. Charles Pokorny, Halstead, was guest speaker at a meeting of nurses of District Four at Halstead, November 11.

* * *

Dr. J. W. Shaw, Wichita, was recently elected president of the Down Town Kiwanis Club in Wichita.

Dr. George Mandeville, Spearville, spoke on medical topics before the Spearville Lions Club at a recent meeting.

* * *

Dr. Robert W. Myers, Newton, who recently returned from service in Korea, showed pictures of activities of the medical corps there before the Woman's Auxiliary to the Harvey County Medical Society on November 3.

* * *

"The Doctor Looks at the Law" was the subject of an address given by Dr. R. M. Gouldner, Wichita, at a recent meeting of the Wichita Bar Association.

* * *

The Turon community and surrounding areas of Reno, Stafford, Kingman and Pratt counties honored Dr. M. S. Thacher, Turon, on November 24. He had completed 50 years of practice in the community.

* * *

Dr. E. Burke Scagnelli, Jetmore, spoke on "Preventive Medicine for the Pre-school and Elementary School Child" at a meeting of the Dodge City P.T.A. on November 13.

* * *

Dr. R. Y. Strohm, Fort Scott, city-county physician, has supervised 2450 "patch" tests for tuberculosis on school children in Fort Scott.

* * *

Dr. C. E. Burtch, Portis, who has practiced 48 years, was guest of honor at a celebration last month on the occasion of his 78th birthday.

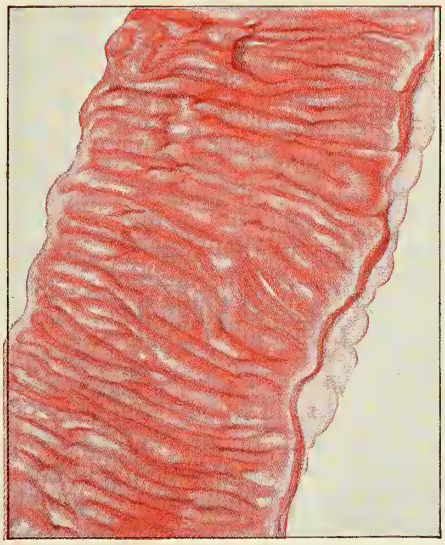
The world's weddings, the world's babies and the world's growing population are among the subjects covered in a 700-page volume issued recently by the World Health Organization, "Vital Statistics and Causes of Death."

Marriage rates, according to the report, increased sharply at the end of World War II. Although figures have been decreasing since that time, the number of marriages per year still is higher than the 1936-1938 average.

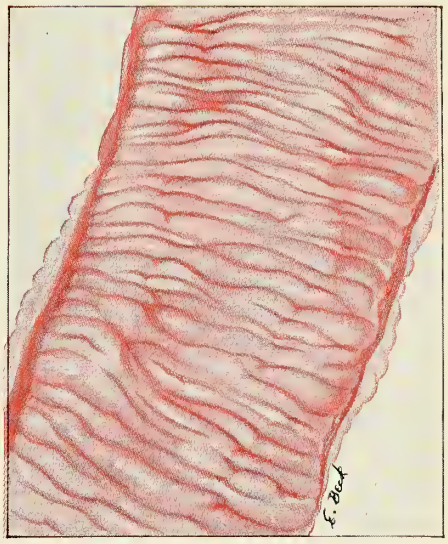
The increase in the marriage rate was sharply reflected in birth rates, the peak year being 1947. In the United States that year the increase was from 17.2 to 25.8 per thousand. Always in the period immediately following wars there are more boy babies born than girls, and World War II was no exception.

Now is the time to make hotel reservations for the 94th annual session of the Kansas Medical Society, Wichita, May 4-7, 1953.

Promotes Normal Peristalsis— Without Injury to Mucosa



Irritated, injected mucosa such as is produced by roughage.



Mucosa remains normal following Metamucil.

Metamucil produces "a smooth, highly glistening mucosa and an increase in the tone of the bowel musculature."*

With Metamucil's "smoothage" management of constipation there is no irritation, straining or impaction—and no interference with digestion or absorption of oil-soluble vitamins.

Metamucil powder is taken with a full glass of cool liquid—producing an adequate quantity of bland, plastic, water-retaining bulk which mixes intimately with the intestinal contents and is distributed evenly through the digestive tract.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

METAMUCIL® is the highly refined mucilloid of Plantago ovata (50%), a seed of the psyllium group, combined with dextrose (50%) as a dispersing agent.

* Block, L. H.: Management of Constipation with a Refined Psyllium Mucilloid Combined with Dextrose, Am. J. Digest. Dis. 14:64 (Feb.) 1947.

SEARLE RESEARCH IN THE SERVICE OF MEDICINE

Senior Thesis from the University of Kansas Medical School*
Sarcoidosis

Robert L. Hanes**

Kansas City, Kansas

It is only 16 years since attention was first directed in this country to sarcoidosis as a systemic disease by Hunter in 1936[1] and Longcope in 1937.[2] Once the syndrome was recognized, sarcoidosis proved to be a common and important disorder, as is shown by the number of clinical reports concerning large numbers of patients which have appeared within the last two years, and the increasing amount of literature as to its treatment with ACTH and Cortisone within the last year. A better understanding of the clinical and laboratory manifestations of sarcoidosis, along with certain recent advances, especially some concerning the epidemiology, diagnosis and treatment of sarcoidosis, deserve attention.

Historical Note

The complete history of Boeck's sarcoid has been extensively reviewed by Hunter,[1] and need not be developed in great detail. Nevertheless, a brief review enables one to understand more clearly in what manner the present concept of the disease arose. A factor contributing to the confusion surrounding sarcoidosis is that the varying manifestations of the disease were initially described by various authors as separate diseases. The realization that they were different aspects of the same disease developed only gradually. It is worthy of note, however, that although Boeck appears to have been the first to describe the histologic characteristics of the skin lesions, Hutchinson had already published a clinical description of such a case in 1875. Besnier in 1889 and Tenneson in 1892 had also described lupus pernio, which was later shown to be another skin manifestation of the same disease. The reports following Boeck's in 1899, indicated that other organic systems could also be affected, so that by 1917 Schaumann was able to postulate a generalized disease primarily affecting the lymphohematopoietic apparatus, and only incidentally the skin.[1,3] It is only in recent years (Longcope 1937, Pinner 1938) that such conditions as uveoparotid fever and at least some cases of the Mikulicz syndrome have come to be recognized as special manifestations of the same disease.[2]

Another factor contributing to the early confusion of sarcoidosis, has been the bewildering nomenclature applied to this disease at various times. Fortunately, however, as the disease has been emerging from its status as a medical curiosity and has become more widely recognized as a fairly well defined entity, most of the earlier designations have been gradually discarded in this country in favor of sarcoidosis or Boeck's sarcoid, and benign lymphogranulomatosis (or recognizable modifications of Besnier-Boeck-Schaumann's disease) in Europe.[3]

Etiology

Sarcoidosis remains a disease of unknown cause. At some time or other practically every agent capable of producing a granulomatous reaction or of diffusely affecting the reticuloendothelial system has been suggested as a possible cause of sarcoidosis. The case for tuberculosis was presented in detail in 1946 by Pinner,[4] whose arguments are essentially those of the many other proponents of this theory. Intensive investigation in recent years has failed to yield substantial evidence in support of a tuberculous etiology.[3] Much indirect evidence has been accumulated which argues against a tuberculous etiology, but it must be admitted that this controversy will be convincingly settled only when the cause or causes of sarcoidosis are finally determined.[5]

Pathology

The pathological changes in Boeck's sarcoid are well known and have been reviewed in detail by Freiman[3] (1948). In brief, the basic lesions are granulomatous epithelioid cell tubercles which may completely replace the normal architecture of the organ in which they appear. These tubercles consist of a mass of noncaseating "tubercles" composed entirely of large, pale epithelioid cells with little or no surrounding collar of lymphocytes. Giant cells of the Langhans type may or may not be present. The rare occurrence of peculiar basophilic cytoplasmic inclusions in giant cells has been described.[3] The nature of these bodies and their significance is not known. Although formerly thought to be associated only with sarcoidosis, it was recently emphasized by Riley[6] (1950) that they are nonspecific and occur in other diseases such as leprosy, lupus erythematosis, and occasionally tuberculosis. It is now known that the histologic appearance of the lesions, even in clinically typical cases, is subject to some variation. Even the characteristic absence of necrosis is not constant; small necrotic foci in the central portions of the lesions have often been described and are no longer considered incompatible with the diagnosis.[3] Moderate numbers of lympho-

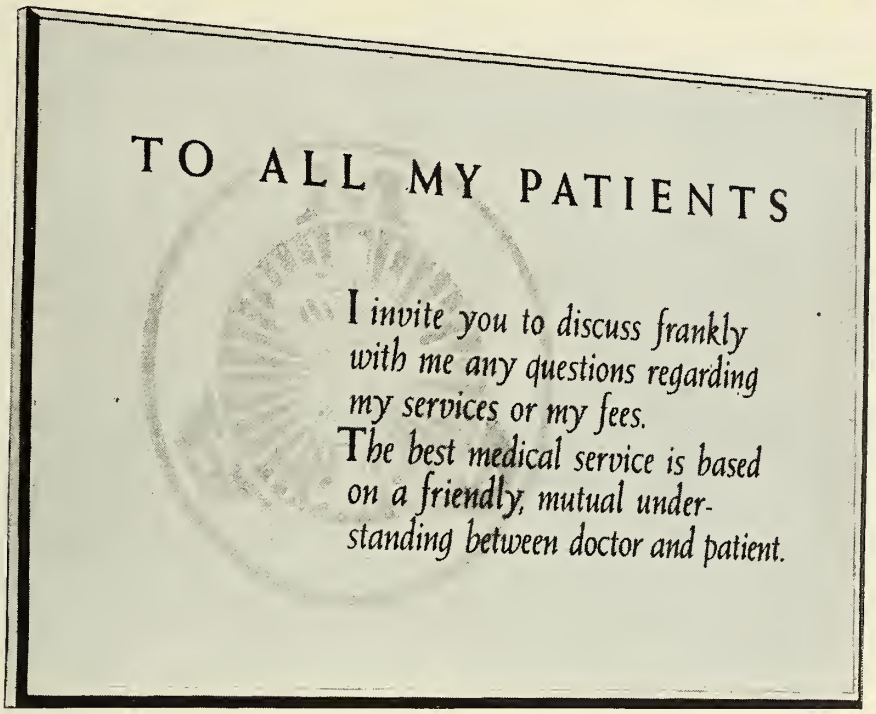
*This is one of 11 senior theses selected for publication by the Editorial Board from a group of 15 judged the best by the faculty of the University of Kansas School of Medicine.

**Senior Student, University of Kansas School of Medicine.

announcing

A NEW PUBLIC RELATIONS AID

. . . to boost your PR rating



NEW OFFICE PLAQUE

- ✓ dark brown lettering on buff
- ✓ harmonizes with any office decor
- ✓ measures 11½ by 7¾ inches
- ✓ for desk or wall
- ✓ laminated plastic finish

As you know, a physician's best public relations is carried on right in his own office. Here the physician gets acquainted with his patients . . . gives them a chance to talk over problems . . . builds a feeling of mutual understanding between patient and doctor.

Your American Medical Association has designed an attractive new office plaque to be displayed prominently on an office desk or wall. This is a graphic invitation to patients to talk over professional services and fees. Patients like to ask questions, but often are hesitant to do so. This plaque will open the door to better relations with your patients. Order one today.

PRICE
$1
POSTPAID

Order Department
AMERICAN MEDICAL ASSOCIATION
535 North Dearborn Street
Chicago 10, Illinois

cytes may be scattered among the epithelioid cells, but neutrophils and eosinophils are practically never present. Giant cells are frequently not prominent, but their rarity is not a dependable diagnostic point as was once thought.[6]

It is important to remember that sarcoidosis is a systemic disease and the discovery of epithelioid tubercles in excised surgical specimens does not establish a diagnosis of sarcoidosis, unless there is clinical or roentgenologic evidence of involvement elsewhere. Isreal and Sones (1952),[5] have encountered several instances in which typical sarcoid lesions were detected in isolated lymph nodes and in which prolonged observation has demonstrated no evidence of systemic involvement. Nadel and Ackerman, 1950,[7] have reported five cases in which lymph node changes characteristic of sarcoidosis were observed in association with neoplasms. This demonstration of the nonspecific character of the sarcoid granuloma emphasizes anew the fact that the diagnosis of sarcoidosis requires more than a pathologic report of sarcoid tubercles.

Riley, 1950,[6] feels that the term sarcoidosis should be reserved for the generalized disease with evidence of widespread disseminated foci in which there must be a close correlation between the clinical findings and the evaluation of pathologic material.

Incidence

The distribution of sarcoidosis seems to be world wide. More cases have been reported from the Scandinavian countries, Canada, and the United States. Freiman[3] feels that it is exceedingly difficult to make even an approximation of the actual incidence, as a fair number of probable cases have never been confirmed, and still others have most certainly been overlooked.

It is now generally agreed that, in this country at least, the disease appears most frequently in the Negro race.[3,8,9] Recently, Michael (1950)[8] surveyed 350 cases with special reference to epidemiology. The rate in southern Negroes was 15 times that in northern born Negroes; the rate in southern whites was six times that of northern born whites, and was higher than that of northern born Negroes. A somewhat similar observation had been made several years earlier by Tornell in Sweden, who had remarked on the frequency of an agricultural background in his patients with sarcoidosis, and had suggested on the basis of this association the likelihood of a mycotic etiology of the disease.[8]

Isreal and Sones (1952)[5] emphasize that sarcoidosis appears to be extremely rare among what is the largest group in this country, the native born urban white. They further state that this fact is of diagnostic value; caution should be exercised before making a diagnosis of sarcoidosis in patients not of southern or rural origin.[5] This observation suggests either an infectious agent prevalent chiefly in this country in the rural south, or some constitutional or environmental abnormality occurring in childhood years resulting in a modification of response to irritants or infection in later years.[5] In any event, no theory of the etiology of sarcoidosis can be seriously entertained that is not in accord with these geographic facts.

Symptoms

The manifestations of this disease are many and varied because of the number of organs and tissues which may be involved. McCort (1947),[10] recognizes four clinical types as they present themselves to the physician. These are: (1) the sarcoids of the skin as described by Boeck and Besnier, (2) the uveoparotid fever of Heerfordt, (3) the type with lymphadenopathy of superficial or intrathoracic nodes simulating lymphoblastomas, and (4) a type in which there is primarily involvement of the pulmonary parenchyma on roentgen study and which, when there is also cough, loss of weight, and slight fever, may closely resemble pulmonary tuberculosis.

The majority of symptoms, as reported by numerous authors, appear to be referable to the chest, which is not surprising if the high incidence of pulmonary involvement is considered.[3] Riley 1950,[6] lists sputum, cough, weight loss, and weakness as the four most numerous symptoms in that order of frequency in his recent series of 52 patients, which closely corresponds with that of numerous others.[3,9,10]

In the study of patients with sarcoidosis, one is impressed by the fact that symptoms, when they exist, are caused primarily by mechanical interference with the function of organs rather than by any form of intoxication. When the miliary "hard tubercles" collect in great numbers, they tend to displace or destroy normal tissue or may even produce tumor-like masses that involve one or several organs. In certain organs, such as the skin and the superficial lymph nodes, this growth of sarcoids causes little or no damage, but in the eye, the mediastinum, the lungs, or in rare instances, the central nervous system and the heart, the accumulation of sarcoids may produce great destruction or actually cause death.[3,10]

Clinical Observations

One is referred to Freiman's recent review of the literature which gives an extensive discussion on the involvement of systems and individual organs. No such elaborate review will be given here. However, the most constant findings deserve mention.

Involvement of the lymph nodes as manifested by palpable or roentgenographic enlargement is demonstrable in almost every case.[6,9] The intrathoracic nodes appear to be the group most consistently

Schering

CORTOGEN®

ACETATE

for

CORTISONE

therapy

CORTOGEN

The name Schering has come to stand for pioneering research and leadership in steroid hormone chemistry. Now Schering adds this new important product to its steroid line—available in ample amount to meet all your cortisone needs.

Available as 25 mg. tablets, bottles of 30. For complete information write to our Medical Service Department.

Schering CORPORATION · BLOOMFIELD, N. J.

affected, and in almost all cases have shown prominent hilar shadows. The enlargement is usually bilateral, as distinct from tuberculosis, which is usually unilateral. The nodes have little tendency to coalesce; even considerable enlargement of the hilar nodes is rarely associated with pressure or other obstructive phenomena.[3] Peripheral lymph-adenopathy is the next most frequent finding and was noted in 60 per cent of Riley's patients, most usually generalized and only rarely limited to a single node or to one or two groups.[6]

Involvement of the pulmonary parenchyma is often a prominent feature of the disease. The roentgenographic pattern is by no means pathognomonic and may be mimicked by a wide variety of conditions. The infiltrations tend to be diffuse and bilateral, but may be localized in certain phases. The roentgenographic appearance of the chest is largely dependent upon the phase of evolution of the disease at any given time, and a number of authors have had the opportunity to follow the phases of development and regression of such lesions with serial roentgenograms. Early lesions tend to be of the miliary or nodular disseminated type. They are in large measure reversible and may resorb, leaving little or no trace. The linear, strand-like type lesion may also resorb partially or completely, but shows a greater tendency to fibrosis. With the onset of interstitial fibrosis, complete resorption is no longer possible.[12]

Hepatomegaly and splenomegaly are the next most frequent manifestations.[6] In spite of the frequency of liver involvement, Shay (1951)[13] has shown that liver function rarely seems to be significantly disturbed.

Involvement of the eye and its related structures is reported in 25 to 50 per cent of cases in recent series.[6,8,9] These figures are substantially higher than older estimates and clearly represent the now general acceptance of the uveoparotid syndrome as a manifestation of sarcoidosis.[6] Eye involvement usually manifests itself as a painless iritis or iridocyclitis, either bilateral or, less commonly, unilateral. Although the lesions may resorb completely, such serious complications as posterior synechiae, corneal opacities, and phthisis bulbi have been frequently observed.[6,9]

The incidence of roentgenographically demonstrable bone involvement ranges from 15 to 25 per cent of cases as shown by Freiman's review.[3] The osseous lesions show a predilection for the phalanges and when demonstrable are of diagnostic significance, although lesions have appeared in the long bones and elsewhere. These changes have recently been reviewed by Holt and Owens,[14] and consist essentially of two types. The first type consists of well localized punched out cystic areas without evidence of surrounding inflammatory reaction. The second type, considered more characteristic of sarcoidosis, consists of marked alteration in the trabecular structure of the bone with extensive cortical atrophy and resorption. Pain is conspicuously absent.[14]

Laboratory Findings

Perhaps the most consistent of all the laboratory observations in this disease is the reaction to the tuberculin skin test, which in a great majority of instances is negative. Most estimates of the incidence of such nonreactors range between 60 and 70 per cent of the cases, the remaining positive cases usually tending to be weak.[5,6,9] Isreal and Sones[15] have recently shown that the majority of these patients with sarcoidosis failed to develop tuberculin sensitivity following B.C.G. vaccination. A similar response to B.C.G. vaccination has been reported in patients with Hodgkin's disease, and presumably in both diseases represents a general and non-specific immunologic impairment.[15]

Another interesting and significant symptom, when present, is the elevation of the globulin fraction of the blood protein, which occurred in 70 per cent of patients in recent series.[6,9] The rise in globulin may occur at the expense of the albumin, so that reversal of the ratio may be observed even in cases in which the total protein shows little or no increase.

Other inconstant findings include mild leukopenia, monocytosis, and eosinophilia, but they carry little diagnostic significance.[10] Elevations in serum calcium with values as high as 100 mg. per 100 cc. have also been noted. Hypercalcemia, when it does occur, is often associated with hyperglobulinemia, and some relation between the two has been suggested on the basis of the calcium-binding power of serum protein.[3] The skin test for sarcoidosis, known as the Kveim reaction, has found little diagnostic use in this country due to its slow reaction, long duration of the lesion produced, and occasional severity of the lesion produced.[10]

Treatment

Without a true knowledge of the cause of sarcoidosis, all methods of treatment are entirely empiric. Various arsenicals, leprosol, tuberculin, x-ray, radium, ultra violet rays, urethane, and streptomycin have all been employed with equivocal results.[3] Recently, however, more consistent, dramatic improvement has been obtained with ACTH and cortisone. Stone,[16] 1951, followed shortly by Siltzbach,[17] Lovelock,[18] and Small,[19] recently reported most favorable results with cortisone in sarcoidosis.

Siltzbach, February, 1952,[20] has reported on the largest series of patients, all 31 of whom showed

Depo *for duration*

Depo-Testosterone
CYCLOPENTYLPROPIONATE

is the new, slowly metabolized, oil-soluble ester of testosterone

Depo-Testosterone
CYCLOPENTYLPROPIONATE

exerts androgenic effect over longer periods of time than testosterone propionate

Depo-Testosterone
CYCLOPENTYLPROPIONATE

makes every injection a depo-like source of testosterone which maintains an active androgen level for at least 2 weeks

Depo-Testosterone
CYCLOPENTYLPROPIONATE

is latest in The Upjohn Company's series of Depo* preparations for prolonged drug action.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

Each cc. contains:

Testosterone Cyclopentylpropionate 50 or 100 mg.
Chlorobutanol (chloral derivative) in cottonseed oil 5 mg.

50 mg. size available in 10 cc. vials.
100 mg. size available in 1 cc. and 10 cc. vials.

**Trademark, Reg. U. S. Pat. Off.*

a product of **Upjohn Research**

for medicine . . . produced with care . . . designed for health

THE UPJOHN COMPANY, KALAMAZOO, MICHIGAN

marked subjective and objective improvement while on cortisone therapy. The course of cortisone therapy in his series ranged from four to 15 weeks. The daily dose was 100 to 150 mg. Fresh lesions seemed to be more amenable to therapy than older ones, although lesions known to have existed as long as two years also proved responsive. Regression of peripheral lymphadenopathy, pulmonary parenchymal lesions, osseous lesions, skin lesions, and eye lesions were demonstrated following two to four weeks of therapy.[20]

The response to cortisone was irregular and often transitory. In the same patient some sites regressed while others remained refractory, but in no patient could progression of lesions be detected.

Isreal and Sones[5] have treated 10 patients with cortisone and have noted similar dramatic improvement. In one case there were cutaneous, ocular, pulmonary and lymph node lesions. Marked regression occurred at these sites after a 15-day course using 200 mg. of cortisone daily. Biopsies of a cutaneous lesion and a peripheral lymph node at the end of the course showed complete replacement of the sarcoid granulomas by non-specific inflammatory tissue. Chest films three months later showed no recurrence of pulmonary nodular lesions or mediastinal lymphadenopathy. Transient improvement was noted in five patients with disease of long standing. It is their belief at present that treatment with cortisone is indicated in patients whose sarcoidosis appears to be recent and fresh. Treatment does not appear to be warranted in patients with chronic sarcoidosis and few symptoms, while a trial of these drugs is advisable in patients with ocular lesions, with pulmonary insufficiency, or other manifestations of progressive disease.[5]

It has recently been my privilege to observe a patient at the Kansas University Medical Center, who presented ocular, pulmonary, and peripheral lymphadenopathy lesions of sarcoidosis. This patient was initially started on 200 mg. of cortisone daily, which was reduced to 150 mg. on the third day and to 100 mg. daily on the sixth day. Local treatment to the eyes consisted of cortisone opthalmic drops (1.5 per cent solution). Therapy continued for 22 days, at which time the patient was gradually taken off cortisone therapy as recommended by Lovelock,[18] who feels that gradually diminishing doses of cortisone tend to reduce the relapse rate. Marked, dramatic improvement was noted in the ocular lesions, with alleviation of the iridocyclitis and with marked improvement in vision following only one week of therapy. Clearing of the lungs, with complete resolution of the peripheral lymphadenopathy was noted both clinically and with serial roentgenograms and biopsies. This marked improvement was thought to be significant, and did not represent a spontaneous remission of sarcoidosis. This patient has not been followed for a sufficient period of time to note any relapse.

Decisive evidence that the natural course of the disease is fundamentally affected by the use of cortisone is lacking; yet the repressive effect of the drug appears to be of value in reducing the activity of lesions and minimizing the damage to vital organs during exacerbations of the disease.[20] For the present it would seem wise to use cortisone particularly in those cases in which the site and extent of involvement portends dire consequences to the patient.

Prognosis

The Scandinavian use of the term "benign lymphogranulomatosis" for this disease and some of the earlier American reports on sarcoidosis have given a falsely sanguine impression concerning the course of this disease. It was considered at one time that except for the risk of development of tuberculosis, sarcoidosis was almost invariably benign. Isreal and Sones,[5] in their recent follow up of 59 patients for a mean interval of more than four years, report a mortality rate of 12 per cent. One of the deaths was from tuberculosis; the remainder were due to respiratory insufficency resulting from sarcoidosis. This finding is consistent with that of Riley,[6] who reports a mortality rate of 20 per cent. It is clear that prolonged observation will be necessary before a balanced view of the prognosis will be acquired, but these initial findings suggest that superinfection with tuberculosis is less frequent than has been reported, and that sarcoidosis is in its own right much more malignant than has been recognized.

Summary

A review of the pertinent literature on sarcoidosis has been presented with emphasis on recent advances in both diagnosis and treatment. Sarcoidosis remains a disease of unknown cause. Considerable confusion has resulted in the past from the assumption that the morphologic appearance of the lesion is pathognomonic. A wide variety of agents, of which the unknown cause of sarcoidosis appears to be only one, seem capable of inducing the characteristic granuloma, and it has become increasingly clear that a careful distinction must be made between the term "sarcoid lesion" and the disease "sarcoidosis." The frequency of a southern, rural background of patients in this country has been observed and appears of diagnostic significance. Marked, dramatic improvement has been noted following treatment with cortisone. It is too early to completely evaluate the use of cortisone in sarcoidosis, but it appears to be of value in recent and fresh cases and is especially warranted when lesions locate in vital organs. Recent findings suggest that sarcoidosis is in its

WHEN DIETARY SUPPLEMENTATION IS NEEDED...

what more could a supplement provide?

If the concept of an ideal dietary supplement could be formulated, it might well be one that provides qualitatively every substance of moment in human nutrition. It would provide those for which human daily needs are established as well as others which are considered of value, though their roles and quantitative requirements remain unknown.

How Ovaltine in milk approaches this concept, and how well the recommended three glassfuls daily augment the nutritional intake, is shown in the appended table. The two forms of Ovaltine available—plain and chocolate flavored—are closely alike in their nutrient values.

THE WANDER COMPANY, 360 N. MICHIGAN AVE., CHICAGO 1, ILL.

Ovaltine

Three Servings of Ovaltine in Milk Recommended for Daily Use Provide the Following Amounts of Nutrients'

(Each serving made of ½ oz. of Ovaltine and 8 fl. oz. of whole milk)

MINERALS		VITAMINS	
*CALCIUM	1.12 Gm.	*ASCORBIC ACID	37 mg.
CHLORINE	900 mg.	BIOTIN	0.03 mg.
COBALT	0.006 mg.	CHOLINE	200 mg.
*COPPER	0.7 mg.	FOLIC ACID	0.05 mg.
FLUORINE	3.0 mg.	*NIACIN	6.7 mg.
*IODINE	0.7 mg.	PANTOTHENIC ACID	3.0 mg.
*IRON	12 mg.	PYRIDOXINE	0.6 mg.
MAGNESIUM	120 mg.	*RIBOFLAVIN	2.0 mg.
MANGANESE	0.4 mg.	*THIAMINE	1.2 mg.
*PHOSPHORUS	940 mg.	*VITAMIN A	3200 I.U.
POTASSIUM	1300 mg.	VITAMIN B_{12}	0.005 mg.
SODIUM	560 mg.	*VITAMIN D	420 I.U
ZINC	2.6 mg.		

*PROTEIN (biologically complete)	32 Gm.
*CARBOHYDRATE	65 Gm.
*FAT	30 Gm.

*Nutrients for which daily dietary allowances are recommended by the National Research Council.

own right much more malignant than has been formerly recognized.

1. Hunter, F. T. Hutchinson-Boeck's disease. Historical note and report of a case with apparent cure. N. Eng. J. of Med. 214; 346. 1936.
2. Longcope, W. T., and Pierson, J. W. Boeck's sarcoid. Bull. Johns Hopks. Hosp. 60; 223-296. 1937.
3. Freiman, D. G. Sarcoidosis, New Eng. J. Med. 239; 664-670. 1948.
4. Pinner M. On etiology of sarcoidosis. Am Rev. of Tuberc. 54; 582-584. 1946.
5. Isreal, H. L., and Sones, M. Sarcoidosis. Am. Pract. and Dig. of treat. 3; 10-14. 1952.
6. Riley, E. A. Boeck's sarcoid. A review based on a clinical study of 52 cases. Am. Rev. Tuberc. 62; 231. 1950.
7. Nadel, E. M., and Ackerman, L. J. Lesions resembling Boeck's sarcoid in lymph nodes draining an area containing a malignant neoplasm. Am. J. Clin. Path. 20; 952. 1950.
8. Michael, M., Cole, R. M., Beeson, P. B., and Olson, B. J. Sarcoidosis. Preliminary report on a study of 350 cases with special regard to epidemiology. Am. Rev. Tuberc. 62; 299. 1950.
9. Moyer, J. H., and Ackerman, A. J. Sarcoidosis. A clinical and roentgenological study of 28 cases. Am. Rev. Tuberc. 61; 295. 1950.
10. Longcope, W. T., and Freiman, D. G. Sarcoidosis. A study of sarcoidosis based on combined investigation of 160 cases. Medicine 31; 11-131. 1952.
11. McCort, J. H., Wood, R. H., Hamilton, J. B., and Erhlich, D. E. Sarcoidosis. A clinical and x-ray study of 28 cases. Arch. Int. Med. 80; 293-321. 1947.
12. Garland, L. H. Pulmonary sarcoidosis. Early roentgen findings. Radiology. 48:333-352. 1947.
13. Shay, H., Berk, J. E., Jones, M., Aegerter, E. E., Weston, J. K., and Adams, A. B. The liver in sarcoidosis. Gastroenterology. 19; 3. 1951.
14. Holt, J. F., and Owens, W. I. The osseous lesions of sarcoidosis. Radiology. 53; 11. 1949.
15. Isreal H. L., and Sones, M., Stein, S. C., and Aronson, J. D. B.C.G. vaccination in sarcoidosis. Am. Rev. Tuberc. 62; 408. 1950.
16. Stone, M. Effect of Cortisone in Sarcoidosis. New Eng. J. Med. 244; 209-213. 1951.
17. Siltzbach, L. E. Cortisone therapy in sarcoidosis. J.A.M.A. 147; 927-930. 1951.
18. Lovelock, F. J., and Stone, D. J. Cortisone therapy of Boeck's Sarcoid. J.A.M.A. 147; 930-932. 1951.
19. Small, M. J. Favorable response of Sarcoidosis to cortisone treatment. J.A.M.A. 147; 933. 1951.
20. Siltzbach, L. E. Effects of cortisone in sarcoidosis. Am. J. Med. 12; 139-160. 1952.
21. Sones, M., Isreal, H. L., Dratman, M. B., and Frank, J. H. Effect of cortisone in sarcoidosis. New Eng. J. Med. 244; 209. 1951.

New Heart Device at K.U.

A new device developed at the University of Kansas Medical Center by Dr. E. Grey Dimond, director of the cardiovascular laboratory, will make possible the transmission of heart tracings by telephone, cable or radio telephone. It is called the "Tele-EKG."

Electrical impulses representing the action of the patient's heart are taken directly from the patient's body, fed to the telephone line, and are reproduced in chart form in the specialist's laboratory. Thus, a heart patient could have his ailment diagnosed by a specialist hundreds of miles away without delay.

In the initial demonstration, an electrical tracing of the heart action of a patient at the student hospital at the University of Kansas campus in Lawrence was transmitted to Doctor Dimond's laboratory in Kansas City. Next April the unit will be demonstrated between Kansas City and Atlantic City, where the American Heart Association will be meeting.

Development of the device was financed by the National Heart Institute. Dr. Dimond was assisted in producing the unit by Mr. Fred Berry, of the medical center's electronics laboratory.

ANNOUNCEMENTS

The Institute of Industrial Health of the University of Cincinnati will accept applications for a limited number of fellowships offered to qualified candidates who wish to pursue a graduate course of instruction in preparation for the practice of industrial medicine. Requests for information may be addressed to the Institute, College of Medicine, Eden and Bethesda, Cincinnati 19, Ohio.

* * *

The 9th annual clinical conference of the Chicago Medical Society will be held March 3-6, 1953, at the Palmer House, Chicago. A faculty of more than 35 outstanding speakers will take part in the program, and another group will give daily teaching demonstrations which will include the presentation of patients. They will emphasize the technique to be employed in handling orthopedic, medical and pediatric problems. Panel discussions at round table luncheons will also be featured. In addition, there will be technical and scientific exhibits.

Physicians who are not members of the Chicago Society may attend by paying a registration fee of $5.00.

* * *

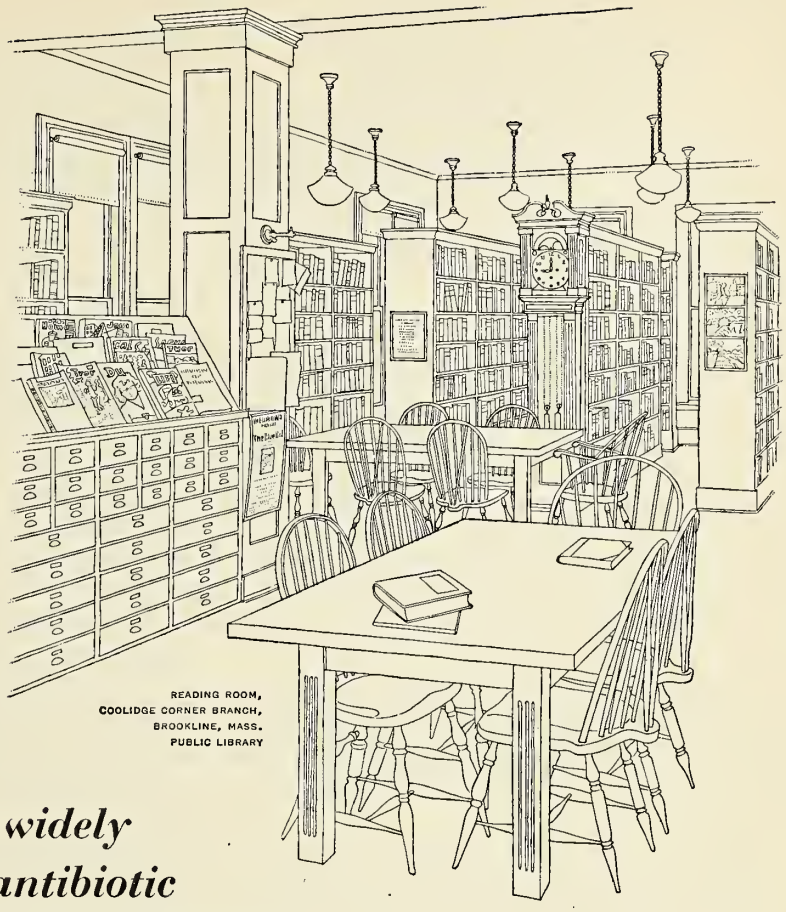
The Sixth Pan-Pacific Surgical Congress will be held in Honolulu in November 1954. Physicians in this country wishing to attend may secure details from the Pan-Pacific Surgical Association, Suite 7, Young Building, Honolulu, Hawaii.

A suggestion that female sex hormones may be the key to the mystery of why women under 50 are far less susceptible than men to hardening of the coronary arteries was made recently by Dr. Jeremiah Stamler, Michael Reese Hospital, Chicago, before the Council for High Blood Pressure Research of the American Heart Association.

As a result of laboratory experiments with chicks, Dr. Stamler drew the tentative conclusion that estrogen made the so-called "weaker sex" less apt to develop hardening of the coronary arteries before the menopause period. In contrast, however, atherosclerosis that developed in the aorta proceeded without interruption, despite estrogen. On the basis of this finding, Dr. Stamler suggested that research workers experimenting in this field cannot confine their studies to the aorta.

He reported also on the varying effects obtained when different hormone secretions of the adrenal cortex are administered to laboratory chicks. He believes that the ratio between the concentration of cholesterol and of phospholipids in the blood may be a significant factor influencing coronary atherosclerosis.

New aureomycin minimal dosage for adults —four 250 mg. capsules daily, with milk.



READING ROOM,
COOLIDGE CORNER BRANCH,
BROOKLINE, MASS.
PUBLIC LIBRARY

a most widely accepted antibiotic in the broad-spectrum field is

AUREOMYCIN

Hydrochloride Crystalline

because

Physicians in the United States and throughout the world have recognized the time-saving value of immediate use of aureomycin in cases of active infection.

The successful use of aureomycin, as described in publications by physicians throughout the world, has increasingly encouraged others to use this antibiotic and publish reports thereon. To date, more than 7,000 original reports, editorials, brief comments, and similar notations have appeared in the published literature.

The trend of the literature clearly indicates that in desperate situations caused by infection, where previously cure would have proved difficult or impossible, aureomycin has saved the day.

Capsules: 50 mg.—Vials of 25 and 100. 100 mg.—Vials of 25 and bottles of 100. 250 mg.—Vials of 16 and bottles of 100.
Ophthalmic Solution: Vials of 25 mg.; solution prepared by adding 5 cc. distilled water.

LEDERLE LABORATORIES DIVISION AMERICAN Cyanamid COMPANY 30 Rockefeller Plaza, New York 20, N. Y.

COUNTY SOCIETIES

A meeting of the Central Kansas Medical Society was held at Hays on October 16. Dr. R. H. Maxwell, Wichita, spoke on "Caesarean Section" and Dr. C. M. White, Wichita, discussed "The Detection and Interpretation of Pathology in the Upper G. I. Tract."

* * *

The Sedgwick County Society met on November 5 to hear a program presented by the Cancer Committee of the Society, under Dr. H. W. Brooks, chairman, and Dr. H. C. Blaylock, co-chairman. Dr. C. T. Hagan spoke on medical aspects, Dr. John Kline on radiological aspects and Dr. W. P. Callahan, Jr., on pathological aspects of "Malignancy of Transverse Descending Colon, Sigmoid and Rectum." Discussants were Dr. John Fulton, Dr. R. E. Hines and Dr. James Holt.

* * *

Dr. Warren F. Bernstorf, Winfield, president of the Kansas Medical Society, and Mr. Oliver E. Ebel, Topeka, executive secretary, were guest speakers at a meeting of the Cloud County Society held November 6 in Concordia.

* * *

A joint meeting of the Nemaha County Medical Society and Auxiliary was held at the home of Dr. and Mrs. C. M. Barnes, Seneca, on October 28. After a buffet supper, the physicians held a business meeting and viewed a medical film.

* * *

Dr. John P. White, Parsons, was named president of the Labette County Society for 1953 at a meeting held last month at the Parsons Country Club.

* * *

Dr. and Mrs. Louis Graves, St. John, entertained members of the Stafford County Society and Auxiliary at a dinner at their home on October 13. Separate business sessions were held later in the evening.

* * *

A meeting of the Doniphan County Society was held recently and Dr. Robert Corder, Highland, was named president for 1953. Dr. Emerson Yoder, Denton, was elected vice president.

* * *

A meeting of the Shawnee County Society was held at the Hotel Jayhawk, Topeka, on November 4. Speaker of the evening was Dr. Maurice B. Strauss, Boston, who discussed "Pernicious Anemia, Vitamin B-12 and Folic Acid."

* * *

Three county societies, Sumner, Harper and Barber, made plans for merging into a Tri-County Society at a meeting held at Harper on November 19. Dr. Warren F. Bernstorf and Mr. Oliver E. Ebel, president and executive secretary, respectively, of the Kansas Medical Society, were present for the organization meeting. The following officers were elected: president, Dr. L. C. Joslin, Harper; vice president, Dr. J. D. Hilliard, Medicine Lodge; secretary-treasurer, Dr. Albert C. Hatcher, Wellington.

Technical Report on Blood

Publication of a complete and authentic report on blood, "Standard Values in Blood," was announced recently by the United States Air Force. Information for the publication was contributed by more than 600 leading medical authorities throughout the world.

The report was prepared by the National Research Council under sponsorship of the Aero Medical Laboratory. Dr. Errett C. Albritton, of the George Washington University Medical School, served as editor.

Data included in the more than 100 tables in the report describe practically every known property of blood. Each of the thousands of individual figures was verified at least six times, and some of them were rechecked as high as 20 times. The report includes chemical and biological properties of blood, latest knowledge on coagulation, blood groups, and the effective blood levels of various drugs and therapeutic agents.

Among the interesting facts revealed in this study is that blood contains more than 300 chemical compounds ranging from complex hormones, enzymes and vitamins to simple metallic elements such as copper, zinc, manganese and iron.

Copies may be secured from the Office of Technical Services, Department of Commerce, Washington, D. C.

The accurate reporting of medical news is a service to which the public is entitled. However, inaccurate reporting of medical news, even though it is unintentional, is definitely a disservice and cannot help but disturb and disrupt the high-level relationship that has been cultivated for many years between the doctor and the patient, and between the pharmacist and the patient—extremely valuable relationships which build for mutual confidence and respect all along the line in the health professions. —*Graydon L. Walker, Parke, Davis and Company.*

Telepaque, the new radiopaque medium for gallbladder visualization introduced by Winthrop-Stearns, Inc., is credited as opening a new field in study of the biliary system by Dr. William H. Shehadi of the department of radiology of the New York Polyclinic Medical School and Hospital.

ANNUAL CLINICAL CONFERENCE
CHICAGO MEDICAL SOCIETY

March 3, 4, 5, 6, 1953

Palmer House, Chicago

THIRTY-FOUR HALF-HOUR LECTURES BY OUTSTANDING TEACHERS AND SPEAKERS on subjects of interest to both general practitioner and specialist.

FOUR PANELS ON TIMELY TOPICS.

DAILY TEACHING DEMONSTRATIONS.

SCIENTIFIC EXHIBITS worthy of real study and helpful and time-saving TECHNICAL EXHIBITS.

The CHICAGO MEDICAL SOCIETY ANNUAL CLINICAL CONFERENCE should be a MUST on the calendar of every physician. Plan now to attend and make your reservation at the Palmer House.

It's Convenient to Buy Kanox
THERAPEUTIC OXYGEN AND ANESTHETIC GASES

Oxygen Therapy
Regulators and Equipment
Repair Service for
Regulators, Flowmeters
and Humidifiers



Nitrous Oxide
Ethylene
Carbon Dioxide
Helium
Oxygen
Cyclopropane

KANSAS OXYGEN, Inc.
Phone 6392 HUTCHINSON, KANSAS Box 551

BOOK REVIEWS

The Prenatal Origin of Behavior. By Davenport Hooker. Porter Lecture Series 18. Published by the University of Kansas Press, Lawrence, Kansas. 143 pages. Price $2.50.

This book comprises the 18th series of Porter Lectures given at the University of Kansas.

The first chapter reviews the observations on the fetal activity of infrahuman vertebrates from the classical work of Coghill up to the present time. Coghill's concept maintains that reactive behavior starts as a total pattern in which neuromuscular mechanisms capable of functioning participate from the beginning, and this pattern is expanded as more mechanisms become functional. New neural elements integrate with those already functioning. Local reflex patterns become engrafted on the total pattern in a cephalocaudal and proximodistal direction.

Apposed to this view is the concept of Swenson and Windle in which behavior is assumed to develop by the appearance of a localized, nonintegrated, unitary response, upon which others become secondarily integrated. Windle thinks that anoxia in the fetal blood soon induces abnormal responses. The sequence of development of activity in the human fetus is described in the second chapter. The author has taken an active part in the investigations on human fetuses. The third and last chapter considers the structural and functional interrelationships in prenatal activity.

Evidence gathered appears to indicate that behavior of vertebrates, including man, has its genesis in the early exteroceptive responses exhibited during embryonic, larval, or fetal life. Although there is some similarity in the succession of responses to external stimuli in the vertebrate series, the various classes of vertebrates have their own individual characteristics in the development of behavior. Voluntary acts, when they appear, develop upon the earlier reflexogenic sequences of prenatal life. This book demonstrates a contribution that pure science in the field of morphology can contribute to the large problem of behavior. It should be of interest not only to anatomists but also to workers in other disciplines dealing with the problem of behavior.—*A.T.S.*

* * *

Therapeutic Meal Plans—A New Diet Manual. By Virginia Toews, Berdena Rosenow and Ruth Gordon. Published by University of Kansas Press, Lawrence, Kansas. 111 pages. Price $3.00.

This manual is a well organized, complete guide for those persons concerned with dietary treatment. The meal plans as described are thorough and accurate. The food lists are complete and the diets explained simply. The additional pamphlet in the back of the book which lists diets for pathological conditions would be most helpful, particularly to house staffs.

The book is compact and printed with no wasted space, one diet followed closely by the next. This might initially confuse the inexperienced; however, the manual is so well indexed that it should cause no serious difficulty.

* * *

Brain Surgeon—The Autobiography of Dr. William Sharpe. Published by The Viking Press, Inc., New York, New York. 271 pages. Price $3.75.

This book presents in easily readable form the medical and social reminiscences of one of the pioneer neurosurgeons in New York City. The author's interest in Pan-American medicine, cerebral palsy and racial equality dominates throughout. While many will not agree with the neurosurgical opinions expressed herein, those interested in the early development of neurosurgery will find an enjoyable evening's reading in this book.—*C.E.B.*

* * *

The Treatment of Injuries to the Nervous System. By Donald Munro. Published by W. B. Saunders Company, Philadelphia. 284 pages, 46 illustrations, 7 tables. Price $7.50.

Written primarily for the general surgeon and general practitioner, this book covering the injuries to the nervous system is essentially a revision of the author's former publication on cranio-cerebral injuries with the additional inclusion of consideration of injuries to the spinal cord and peripheral nerves.

The cranial injuries are first considered with attention to general problems of head injuries and the operative and non-operative treatment. It is difficult to agree with the author's advocacy of critical lumbar puncture, and many neurosurgeons would not agree that tracheotomy is contraindicated in severe head injuries. The author also considers cranio-cerebral injuries in children, newborn, and a very complete consideration of injuries to the spinal cord and their consequences is presented.

Very brief presentations of peripheral nerve and autonomic nervous systems are also given, along with useful brief chapters on the cost of medical care of these injuries and rehabilitation considerations.

The book is well-written and easy to read, and appears to accomplish its purpose in forming a reference guide for the surgeon and general practitioner handling these injuries.—*C.E.B.*

* * *

Pharmacology in Clinical Practice. By Harry Beckman. Published by W. B. Saunders Company,

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE

Announces

POSTGRADUATE COURSE IN RADIOLOGY

FEBRUARY 16, 17, AND 18, 1953

Distinguished Guest Instructors:

I. MESCHAM, M.D., Professor and Head, Department of Radiology, University of Arkansas School of Medicine, Little Rock.
EDWARD B. D. NEUHAUSER, M.D., Radiologist-in-Chief, Children's Hospital, Boston, Massachusetts.
ISODORE LAMPE, M.D., Department of Roentgenology, University Hospital, University of Michigan, Ann Arbor.
SIMEON T. CANTRIL, M.D., Tumor Institute, Swedish Hospital, Seattle, Wash.
DAVID PUGH, M.D., Section of Diagnostic Roentgenology, Mayo Clinic, Rochester, Minnesota.

Subjects:

Radiology of the Spine
The Role of the Radiologist in the Examination of the Heart
Lesions of the Gastro-Intestinal Tract in Children
Lesions of the Chest in Children
Roentgen Examination of the Esophagus
Significance of Roentgen Examination in the Acute Abdomen
Errors in Gastro-Intestinal Diagnosis
Polyps of the Colon
Roentgen Aspects of Arthritis
Value of Study of the Spine in Anterior, Posterior and Lateral Bending
Hemorrhage of Upper Gastro-Intestinal Tract of Undetermined Origin
Intestinal Ileus
The Purged Colon
Melorheostosis Leri
Influence of Genotype and Endocrine Factors on Bone Development—Clinical, Roentgen and Isotope Appraisal
Metabolic Bone Diseases
Aseptic Necrosis
Benign Bone Tumors
Tumors of the Jaw
Beta Radiation of the Eye
Results of Treatment of Carcinoma of the Lip
Treatment of Cancer of the Larynx from Standpoint of Radiation Therapy
Radiation Therapy of Breast Carcinoma
Treatment of Carcinoma of the Cervical Stump
Evaluation of Radiotherapy in Treatment of Cancer of Endometrium and Cervix
X-Ray Therapy in Diseases of Children
Usefulness and Limitations of Super-Voltage Roentgen Therapy
The Duration of Life in Untreated Cancer

Also Courses in:

Surgery

January 19, 20, 21, 22, and 23, 1953

Pediatrics

January 26, 27, and 28, 1953

Medical Technology

(For both Registered Technicians and others serving in medical laboratories.)
January 12, 13, and 14, 1953

Nursing

(A refresher course for nurses in all branches of the profession.)
February 9, 10, and 11, 1953

For copy of program announcement, address:

Extension Program in Medicine
University of Kansas Medical Center
Kansas City 12, Kansas

THE KANSAS MEDICAL SOCIETY

Approved

DISABILITY INCOME POLICY

Officially approved and endorsed by the Council and the House of Delegates.

Investigated, analyzed and recommended by the Committee on Medical Economics.

- Endorsed and Supervised by your Society
- Non-Cancellable Features
- Lifetime Accident Benefits
- Five-year Sickness Benefits
- Local Claim Service

Serviced by

FIRST INSURANCE AGENCY

Washington National Insurance Company

639 New England Building — Topeka, Kansas

Philadelphia. 839 pages, 152 figures. Price $12.50.

This textbook, which is the latest one to appear on pharmacology, is an entirely different approach to the subject than that found in other available texts on the subject. In many respects it is like the author's well-known "Treatment in General Practice."

On the premise that the doctor at the bedside reasons from "the patient and his malady" to the drug and not in the reverse order, the author has approached the subject from the standpoint of diseases and their treatment. Except for a few chapters in which a group of drugs is treated as a unit, the arrangement of material is according to disease states, and all useful drugs employed in the treatment of a given condition are located under one chapter heading.

The book is comprised of two sections. Section I deals with the pharmacologic aspects of drugs used in various diseases; Section II offers a brief resume of the chemical and physical characteristics of the drugs considered in Section I.

While by no means exhaustive, the book covers the array of drugs useful to the medical profession. The reviewer would definitely like to see an expansion of the discussions on basic principles of pharmacodynamics in future editions; and, although he will agree with the author that much of the subject of structure-activity relationship is not required by the undergraduate medical student, feels that a minimum amount of instruction is necessary for a fundamental understanding of pharmacology.

As a reference for the practicing physician, the text can be heartily recommended as a lucid and up-to-date presentation of the subject in the pleasant informal style characteristic of the author's writings. For the undergraduate medical student it is recommended as supplementary, rather than as the sole textbook for a course in pharmacology.—*R.E.G.*

ABSTRACTS FROM CURRENT LITERATURE

Primary Atypical Pneumonia in Children

Treatment of Primary Atypical Pneumonia in Children with Aureomycin. By Charles E. Anderson Am. Jnl. Dis. Child., 80:4, 533-540, Oct., 1950.

There may be a synergism between streptococci and some unknown virus in the causation of this disease.

Diagnostic criteria are: (1) gradual onset, nonproductive cough and fever, cough increasing and worse at night; (2) minimal chest signs, much less than one would expect to find with actual consolidation; (3) laboratory findings showing low to normal leukocyte count; (4) serologic studies on serial sputum specimens do not reveal the development of antibodies for recognized viral or rickettsial agents; (5) treatment with sulfa or penicillin does not produce improvement in the uncomplicated case; (6) the appearance in the serum of patients of cold agglutinin for the human group 0 cells or agglutinins for streptococcus M G during the course of the disease or in convalescence.

The author reports a group of 19 children, all of whom had typical infection of the upper respiratory tract with cough, roentgen evidence of pneumonitis, leukopenia in most instances, and invariable increase in lymphocytes. All patients were given two to three days trial with penicillin or sulfa, despite which therapy they were clinically worse or unimproved. With one exception, the roentgen manifestation of disease was a rather fan shaped infiltration in the bases of one or both lungs. There were no complications of any kind in this series of cases.

Treatment other than use of aureomycin included only steam, aspirin and syrup of dihydrocodeinone bitartrate for the nocturnal cough.

Cough persisted 5.4 days; roentgen findings persisted 5.7 days.—*D.R.D.*

* * *

Propylthiouracil in Thyrotoxicosis

Propylthiouracil in Thyrotoxicosis: Alternate Cases Treated Medically and Surgically. By Nelson Taylor, Alfred Large and Paul Noth, Am. Jnl. Med. Sc., 220:4, 362-372, Oct., 1950.

A series of 52 cases was studied in sufficient detail over a two-year period to warrant reporting. The cases of diffuse goiter with hyperthyroidism were treated alternately by surgical and medical techniques. Very few of the cases in either series represented uncomplicated hyperthyroidism, cardiac complications being most commonly present. Average initial basal metabolic rates were high, between 55 and 60 per cent.

Of 20 cases of diffuse goiter treated surgically 16 were followed sufficiently to justify conclusions. Thirteen of these obtained sustained remission without further therapy. Three required thyroid extract for postoperative hypothyroidism. Preoperative propylthiouracil was used.

Of 21 cases of diffuse goiter treated medically with propylthiouracil, only 12 cooperated and could be followed. Only three of these obtained sustained remission without further therapy. Nine were still receiving propylthiouracil at the time of the report. The actual duration of treatment to produce an expected remission is not clearly stated.

Six of seven cases of nodular goiter with hyperthyroidism were followed adequately after surgical



More and more
doctors are prescribing
Daricraft Homogenized
Evaporated Milk
for babies . . . and for
convalescent diets

Always uniform in quality, safe, sterilized, high in food value and minerals. Contains 400 U. S. P. units Vitamin D per pint of Daricraft. Easily digested.



FOR CONVENIENCE
ECONOMY QUALITY

Daricraft
HOMOGENIZED
EVAPORATED
MILK

ACCEPTED

PRODUCERS CREAMERY CO., SPRINGFIELD, MO.

CLASSIFIED ADVERTISEMENTS

PHYSICIAN WANTED—Excellent opportunity available for draft exempt physician in modern western Kansas county seat town of approximately 2,000. Only young physician on temporary deferment until replacement can be found. Only two other elderly physicians in entire county of over 9,000 population, only one of these located in this city. Write the Journal 15-52.

OFFICE AND EQUIPMENT AVAILABLE in Hutchinson. Deceased physician had fine practice. Write the Journal 16-52.

FOR SALE—Optical equipment, excellent condition, surgical instruments and office furniture. Write the Journal 17-52.

WANTED—A good recent used self-writing E.K.G. machine, a Cambridge preferred. Also a good skeleton. Write the Journal 18-52.

FOR SALE—An examining chair and glass instrument case. Reasonable. Write the Journal 19-52.

FOR SALE—entire office equipment of retiring physician. Write the Journal 20-52.



SECLUSION MATERNITY



Write for Information

MRS. EVA THOMSON
4911 East 27th St.
Kansas City, Mo.

Fairmount
HOSPITAL
FOR
UNMARRIED
GIRLS
Est. 1909

Private sanitarium with certified abstetricion in charge. All adoptions arranged through juvenile court. Early entrance advised.

Rates reasonable. In certain cases wark given to reduce expenses.

Everything for the Laboratory

Southwest Scientific Corporation

LABORATORY SUPPLIES AND EQUIPMENT

122 South St. Francis Street

Phone 2-0582 Wichita, Kansas

treatment. All obtained sustained remissions. Preoperative propylthiouracil was used.

Three similar patients were followed under medical management with propylthiouracil. Two were still receiving the drug at the time of the report. One died of gastrointestinal hemorrhage, not apparently related to the drug.

There was no mortality from treatment in either the medical or surgical group. One case of agranulocytosis occurred, but was treated with penicillin and subsided.

A significant increase in exophthalmos occurred in 8 of 52 patients while receiving propylthiouracil. No significant progression of exophthalmos occurred in any case postoperatively, and definite regression occurred after thyroidectomy in four cases.

The authors conclude that subtotal thyroidectomy is still the treatment of choice in cases of diffuse goiter with hyperthyroidism.—*E.J.R.*

* * *

Vaccination with Prolonged Vaccinia

Small Pox Vaccination with Prolonged Vaccinia By John A. Bigler and Eugene Slotkowski, Ped., 7:1, 24-33, Jan., 1951.

There are reports in the literature of extremely severe primary reaction take, with and without death. Cases of xeroderma pigmentosum (Kaposi's disease) and vaccinia vaccinatum have also been reported frequently. In these, death occurred or the disease ran a self-limited course with all the lesions in the same stage.

Author's Summary: Definite clinical, histological and immunologic changes take place following smallpox vaccination. After its full development on the ninth or tenth day, the vaccinial lesion is followed by drying, crusting and scarring. Histologically, there are degenerative and irritative changes in the epidermis believed to be due to the direct action of the virus on the epithelial cells. Immunologically, humoral antibodies to vaccinia begin to appear at the end of the first week following cutaneous vaccination, increase in amount during the second and third weeks, and reach a maximum at the end of the third week. The probable reason for the involution of the vaccinial lesion after the pustular stage is the appearance of specific antibodies in the blood which apparently neutralize the vaccinia virus. The presence of histologically active vaccinial lesions approximately four months after implantation of the vaccinia virus could be explained only on the inability of the child to develop immunity to the vaccinia virus. Because of this lack of immunity, degenerative action of the vaccinia virus continued unopposed.—*D.R.D.*

Journal advertisers deserve the patronage of Journal readers.

Isolation of ACTH

The isolation of pure adrenocorticotrophic hormone, ACTH, was announced last month by F. W. Specht, president of Armour and Company. The feat was achieved by a team of six chemists who have worked intensively for more than three years on the project.

ACTH was first introduced for medical use by the Armour Laboratories in 1949. Since then it has been used in the treatment of many complex diseases such as arthritis, asthma, allergy, rheumatic fever, nephrosis, and others.

Pure ACTH is described as a white powder, soluble in water. It is a protein with a molecular weight of about 3,500, much smaller than originally estimated, and appears to consist essentially of a single chain of amino acids. It has 150 to 200 potency units per milligram.

In addition to providing a firm standard against which to measure therapeutic preparations of ACTH, the pure substance opens the way to research on the underlying mechanisms by which the hormone exercises its remarkable effects in protecting against the shock of disease, poisoning or other damage to body cells.

Because its therapeutic effects are exactly the same as those of ACTH, the pure product will not be put on the market, but will be made available for research.

List of Medical Films Available

A new revised film list, including 78 medical films not readily available from other sources, has been published by the Committee on Medical Motion Pictures of the A.M.A. Copies may be obtained from the committee, A.M.A. Offices, 535 North Dearborn Street, Chicago 10, Illinois.

Helicopter ambulance units, designed to evacuate critically wounded patients from forward combat areas, have been authorized as an integral part of the organization of the Army Medical Service in the theater of operations, the Department of the Army announced recently.

Helicopters have been used since early in the Korean conflict to rush severely injured soldiers from battalion aid stations or regimental collecting stations to mobile Army surgical hospitals and rear-area evacuation hospitals, but they have not previously been incorporated in formal field-type units.

The first helicopter ambulance unit is being activated at the Medical Field Service School, Fort Sam Houston, Texas, where it will be used for training purposes. Additional units will be formed in Korea and elsewhere as personnel and equipment become available.

THE LATTIMORE-FINK LABORATORIES

Topeka El Dorado
Kansas

J. L. Lattimore, A.B., M.D., Pathologist
A. A. Fink, A.B., M.D., Pathologist
H. C. Ebendorf, M.T. Serologist
A. C. Keith, B.S., Chemist
L. W. Hull, A.B., Bacteriologist
Walter Norris, A.B., Chemist

Anatomical and Clinical Pathology

Containers Furnished Upon Request

●
●
●

Medical and Surgical Supplies for Doctors of Medicine and Hospitals.

Munns Medical Supply Co.

512 Kansas Ave.
Topeka, Kansas

Cook County Graduate School of Medicine

POSTGRADUATE COURSES—WINTER 1952-53

SURGERY—Intensive Course in Surgical Technic, Two Weeks, starting January 19, February 2, February 16.
Surgical Technic, Surgical Anatomy & Clinical Surgery, Four Weeks, starting March 2
Surgical Anatomy & Clinical Surgery, Two Weeks, starting March 16.
Basic Principles in General Surgery, Two Weeks, starting March 23.
Gallbladder Surgery, Ten Hours, starting April 20.
Surgery of Colon & Rectum, One Week, starting March 2.
General Surgery, One Week, starting February 9.
General Surgery, Two Weeks, starting April 20.
Fractures and Traumatic Surgery, Two Weeks, starting March 2.

GYNECOLOGY—Intensive Course, Two Weeks, starting February 16.
Vaginal Approach to Pelvic Surgery, One Week, starting March 2.

OBSTETRICS—Intensive Course, Two Weeks, starting March 2.

PEDIATRICS—Intensive Course, Two Weeks, starting April 6.

MEDICINE—Intensive General Course, Two Weeks, starting May 4.
Electrocardiography & Heart Disease, Two Weeks, starting March 16.
Allergy, One Month and Six Months, by appointment.

UROLOGY—Intensive Course, Two Weeks, starting April 13.
Ten-Day Practical Course in Cystoscopy starting every two weeks.

DERMATOLOGY — Intensive Course, Two Weeks, Starting May 4.

TEACHING FACULTY—ATTENDING STAFF OF COOK COUNTY HOSPITAL

Address: Registrar, 707 South Wood St., Chicago 12, Ill.

THE MEDICAL PROTECTIVE COMPANY
FORT WAYNE, INDIANA

PROFESSIONAL PROTECTION EXCLUSIVELY SINCE 1899

specialized service assures "*know-how*"

TOPEKA Office:
J. E. McCurdy, Rep.,
1035 Randolph Avenue,
Telephone 2-3027

Committee Chairmen for 1953 Meeting

Dr. Howard C. Clark, president-elect of the Sedgwick County Medical Society, has announced the appointment of the following committee chairmen for the 1953 annual meeting of the Kansas Medical Society, to be held in Wichita, May 4-7, 1953:

General Chairman—Dr. Edward S. Brinton
Scientific Program—Dr. James B. Fisher
EENT Program—Dr. Norton L. Francis
Entertainment—Dr. Lester K. Nix
Reception—Dr. Lloyd P. Warren
Commercial Exhibits—Dr. Robert K. Purves
Scientific Exhibits—Dr. Bert E. Stofer
Publicity—Dr. D. P. Trees
Auxiliary—Dr. William H. Browning

COUNTY MEDICAL SOCIETIES

COUNTY	PRESIDENT	ADDRESS	SECRETARY	ADDRESS
Allen	G. B. Pees, M.D.	Iola	E. E. Long, M.D.	Humboldt
Anderson	M. J. Stevens, M.D.	Garnett	R. E. White, M.D.	Garnett
Atchison	I. R. Morrison, M.D.	Atchison	W. Spencer Fast, M.D.	Atchison
Barber	D. C. McCarty, M.D.	Medicine Lodge	H. Yasuda, M.D.	Hardtner
Barton	M. W. Carlson, M.D.	Ellinwood	A. W. Beahm, M.D.	Great Bend
Bourbon	J. R. Prichard, M.D.	Fort Scott	L. P. Randles, M.D.	Fort Scott
Brown	A. L. Nichols, M.D.	Hiawatha	R. T. Nichols, M.D.	Hiawatha
Butler	A. P. Cloyes, M.D.	El Dorado	J. M. Shields, Jr., M.D.	El Dorado
Central Kansas	J. P. Haigler, M.D.	Hays	R. H. O'Donnell, M.D.	Ellsworth
Chase			Jacob Hinden, M.D.	Strong City
Chautauqua	C. M. Smith, M.D.	Sedan	R. E. Wright, M.D.	Sedan
Cherokee	P. H. Grubb, M.D.	Galena	V. D. Alquist, M.D.	Baxter Springs
Clark	J. R. Burket, M.D.	Ashland	J. H. McNickle, M.D.	Ashland
Clay	F. C. Shepard, M.D.	Clay Center	G. B. McIlvain, M.D.	Clay Center
Cloud	L. E. Filkin, M.D.	Concordia	M. D. McComas, Jr., M.D.	Concordia
Coffey	A. N. Gray, M.D.	Burlington	A. B. McConnell, M.D.	Burlington
Comanche	R. A. J. Shelley, M.D.	Coldwater	L. G. Glenn, M.D.	Protection
Cowley	H. H. Jones, Sr., M.D.	Winfield	A. Y. Wells, M.D.	Winfield
Crawford	P. B. Leffler, M.D.	Pittsburg	E. E. Miller, M.D.	Pittsburg
Dickinson	Dr. A. D. Danielson	Herington	C. R. Svoboda, M.D.	Chapman
Doniphan	A. E. Cordonier, M.D.	Troy	Ralph R. Clutz, M.D.	Bendena
Douglas	J. A. Holmes, M.D.	Lawrence	G. E. Manahan, M. D.	Lawrence
Edwards	Rene Schnoebelen, M.D.	Kinsley	F. G. Meckfessel, M.D.	Lewis
Elk	Frank L. DePew, M.D.	Howard	J. Gordon Claypool, M.D.	Howard
Finney	J. W. Turner, M.D.	Garden City	L. O. Armantrout, M.D.	Garden City
Ford	A. B. Busch, M.D.	Dodge City	C. M. Alderson, M.D.	Dodge City
Franklin	L. N. Speer, M.D.	Ottawa	R. S. Roberts, M.D.	Ottawa
Geary	R. M. Carr, M.D.	Junction City	C. V. Minnick, M.D.	Junction City
Greenwood	John H. Basham, M.D.	Eureka	James J. Basham, M.D.	Eureka
Harper	L. C. Joslin, M.D.	Harper	C. E. Jones, M.D.	Anthony
Harvey	W. C. Dreese, M.D.	Halstead	A. S. Hawkey, M.D.	Newton
Jackson	E. C. Moser, M.D.	Holton	Roy H. Moser, M.D.	Holton
Jefferson	W. L. Good, M.D.	Perry	C. J. Bliss, M.D.	Perry
Jewell	C. S. Hershner, M.D.	Esbon	R. M. Owensby, M.D.	Mankato
Johnson	G. R. Maser, M.D.	Mission	A. E. Derrington, M.D.	Mission
Kingman	T. L. Waylan, M.D.	Nashville	H. E. Haskins, M.D.	Kingman
Kiowa			J. R. Bradley, M.D.	Greensburg
Labette	E. C. Beaty, M.D.	Parsons	H. A. Burnett, M.D.	Parsons
Leavenworth	M. A. Rabe, M.D.	Leavenworth	Vincent Christ, M.D.	Leavenworth
Lyon	F. J. Eckdall, M.D.	Emporia	W. E. Luedtke, M.D.	Emporia
McPherson	E. C. Brandsted, M.D.	McPherson	A. H. Dyck, M.D.	McPherson
Marion	R. R. Melton, M.D.	Marion	C. R. Magee, M.D.	Marion
Marshall	V. J. Vaughn, M.D.	Axtell	R. D. Hughes, M.D.	Frankfort
Meade-Seward	D. G. Holcomb, M.D.	Liberal	A. L. Hilbig, M.D.	Liberal
Miami	W. L. Speer, M.D.	Osawatomie	William Brown, M.D.	Paola
Mitchell	H. B. Vallette, M.D.	Beloit	J. F. Nienstedt, M.D.	Beloit
Montgomery	J. D. McMillion, M.D.	Coffeyville	W. T. Read, M.D.	Coffeyville
Morris	B. E. Miller, M.D.	Council Grove	N. A. Burkett, M.D.	Council Grove
Nemaha	C. C. Hunnicutt, M.D.	Sabetha	T. A. Montgomery, M.D.	Sabetha
Neosho	J. A. Butin, M.D.	Chanute	R. H. Rollow, M.D.	Chanute
Northwest Kansas	C. E. Sixbury, M.D.	Oberlin	D. E. McCoy, M.D.	Oberlin
Osage	P. D. Adams, M.D.	Osage City	N. M. Stout, M.D.	Lyndon
Osborne	W. W. Miller, M.D.	Osborne	J. E. Henshall, M.D.	Osborne
Pawnee	O. R. Cram, M.D.	Larned	H. L. Patterson, M.D.	Larned
Pottawatomie	L. W. Cazier, M.D.	Wamego	O. L. Smith, M.D.	St. Marys
Pratt	M. E. Christmann, M.D.	Pratt	R. W. Edwards, M.D.	Pratt
Reno	J. N. Blank, M.D.	Hutchinson	W. E. Brownlee, M.D.	Hutchinson
Republic	C. V. Haggman, M.D.	Scandia	P. L. Beiderwell, M.D.	Belleville
Rice	A. F. Schmidt, M.D.	Little River	E. R. Hill, M.D.	Lyons
Riley	W. R. Durkee, M.D.	Manhattan	H. P. Jubelt, M.D.	Manhattan
Rush-Ness	W. J. Singleton, M.D.	LaCrosse	R. E. Grene, M.D.	LaCrosse
Saline	A. E. Rueb, M.D.	Salina	H. S. Dreher, Sr., M.D.	Salina
Sedgwick	B. P. Meeker, M.D.	Wichita	W. H. Fritzemeier, M.D.	Wichita
Shawnee	B. J. Ashley, M.D.	Topeka	D. B. Foster, M.D.	Topeka
Smith	F. H. Relihan, M.D.	Smith Center	Victor E. Watts, M.D.	Smith Center
Stafford	L. G. Graves, M.D.	St. John	O. W. Longwood, M.D.	Stafford
Sumner	K. E. Voldeng, M.D.	Wellington	W. M. Cole, M.D.	Wellington
Washington	D. A. Bitzer, M.D.	Washington	L. L. Huntley, M.D.	Washington
Wilson	D. C. Smith, M.D.	Fredonia	C. E. Stevenson, M.D.	Neodesha
Woodson	A. C. Dingus, M.D.	Yates Center	H. A. West, M.D.	Yates Center
Wyandotte	E.J.Grosdidier,M.D.	Kansas City	G. R. Peters, M.D.	Kansas City

Nationally advertised Surgical Supplies and Equipment have been placed at Topeka, Joplin, Kansas City and St. Joseph for your convenience by —

GOETZE NIEMER CO.

Management by Dr. W. F. Goetze, a member of the American Medical Association, assures intelligent servicing of your orders

R AR-EX X Chap Cream



ROUGH HANDS
FROM TOO MUCH SCRUBBING?

Soothe rough, dry skin with AR-EX Chap Cream. Contains healing ingredient, carbonyl diamide. *Aids severely chapped and broken skin.* Pleasant to use. Scented or Unscented. *Send for sample.*

AR-EX COSMETICS, INC., 1036-J W. Van Buren St., Chicago 7, Ill.

For children from five to twelve, of average or superior intelligence, with emotional and behavior problems:

THE SOUTHARD SCHOOL
of
The Menninger Foundation

Intensive individual psychotherapy in a residential school

Outpatient psychiatric and neurologic evaluation and treatment for children up to 18 years of age is also available.

J. Cotter Hirschberg, M.D., *Director* **Topeka, Kansas, Telephone 3-6494**



Woodcroft Hospital--Pueblo, Colorado

A private hospital for the scientific treatment of neuro-psychiatric disorders, including alcoholism and drug addiction. Beautiful landscaping and home-like surroundings afford a restful atmosphere. Accommodations vary from single rooms with or without bath to rooms en suite, allowing for segregation of guests.

Detailed information furnished on request.

Karl J. Waggener, M.D.



THE BROWN SCHOOL

Four distinct units. Tiny Tots through the Teens. Ranch for older boys. Special attention given to educational and emotional difficulties. Speech, Music, Arts and Crafts. A staff of 12 teachers. Full time Psychologist. Under the daily supervision of a Certified Psychiatrist. Registered Nurses. Private swimming pool, fireproof building. View book. Approved by State Division of Special Education.

BERT P. BROWN, DIRECTOR
PAUL L. WHITE, M.D., F.A.P.A.,
MEDICAL DIRECTOR
P. O. Box 4008, Austin, Texas

Deformity Appliances of Quality

Orthopedic and Surgical Appliances
Artificial Limbs

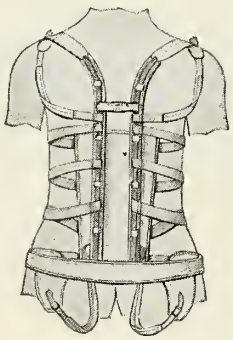
Trusses

Abdominal Supports

Elastic Hosiery

Foot Supports

Surgical Corsets



Taylor Back Brace

Made to Order
In Our Own Factory

P. W. HANICKE MFG. CO.
1009 McGee St. Victor 4750
KANSAS CITY, MO.

Index to Advertisers

Abbott Laboratories XIV
Ames Company, Inc. XII
Ar-Ex Cosmetics, Inc. 607
Ayerst, McKenna and Harrison, Ltd., Inside back cover
Brown School 608
Chicago Medical Society 599
Coca-Cola Company XVIII
Cook County Graduate School of Medicine..... 605
Duncan Laboratories IX
Everest and Jennings 608
Fairmount Hospital 603
Goetze Niemer Company 607
Hanicke, P. W., Manufacturing Company..... 608
Isle, W. E., Company 603
Kansas Oxygen, Inc. 593
Lattimore-Fink Laboratories 605
Lederle Laboratories, Inc. 597
Lilly, Eli, and Company..... Facing XVIII
Mead Johnson and Company Back cover
Medical Protective Company 605
Menninger Foundation 607
Merck and Company, Inc. XVI
Munns Medical Supply Company, Inc. 605
Neurological Hospital Association XVII
Parke, Davis and Company..Inside front cover and III
Pfizer, Charles, and Company, Inc..... X and XI
Physicians Casualty Association XVIII
Producers Creamery Company 603
Ralph Sanitarium VI
Schering Corporation VII and 591
Searle, G. D., and Company..... 587
Smith-Dorsey Company VIII
Southwest Scientific Corporation 603
Squibb, E. R., and Sons V
University of Kansas Medical Center..... 601
Upjohn Company 593
Wander Company 595
Washington National Insurance Company 601
Winthrop-Stearns, Inc. XIII
Woodcroft Hospital 607
Wyeth, Inc. XV

Made stronger to last longer

E&J FOLDING WHEEL CHAIRS



- Chrome plated
- Comfortable
- Easy handling
- All welded joints
- Accessories and modifications available

See your dealer or write for catalog

FOLDS TO 10 INCHES

EVEREST & JENNINGS
761 No. Highland Ave., Los Angeles 38, Calif.

v.53 1952 39774
Kansas medical society. Journal
AUTHOR
TITLE
DATE DUE BORROWER'S NAME

v.53 1952 39774

Kansas medical society. Journal

RETURN THIS BOOK ON OR BEFORE THE LAST DATE STAMPED

JAN 4 1954

MAR 5 55